REPORT RESUMES

ED 003 760 64

FACTORS ASSOCIATED WITH USE OF AUDIOVISUAL MEDIA BY TEACHERS IN ELEMENTARY AND SECONDARY SCHOOLS.

BY- WAYNE, IVOR KINGSBURY, NANCY

BUREAU OF SOCIAL SCIENCE RESEARCH, INC., WASH.,D.C.

REPORT NUMBER NDEA-VIIB-081-A-1 PUB DATE DEC 64

REPORT NUMBER BSSR-363

CONTRACT OEC-SAE-9025

EDRS PRICE MF-$0.18 HC-$4.40 110P.

DESCRIPTORS- QUESTIONNAIRES, *AUDIOVISUAL AIDS, AUDIOVISUAL INSTRUCTION, AUDIOVISUAL PROGRAMS, TABLES (DATA), STATISTICAL DATA, *SURVEYS, NATIONAL SURVEYS, PUBLIC SCHOOLS, *SCHOOL DISTRICTS, *INSTRUCTIONAL AIDS, TEACHER ATTITUDES, *TEACHER RESPONSE, DISTRICT OF COLUMBIA

RESPONSES WERE GATHERED FROM OVER 8,000 TEACHERS ON A QUESTIONNAIRE TO DETERMINE THOSE FACTORS WHICH INFLUENCED THE EMPLOYMENT OF AUDIOVISUAL TECHNIQUES IN ELEMENTARY AND SECONDARY SCHOOLS. PRIMARY VARIABLES USED TO OBTAIN NUMEROUS STATISTICAL DATA TABULATED IN THIS REPORT WERE--(1) ECOLOGICAL AND DEMOGRAPHIC CHARACTERISTICS OF SCHOOL DISTRICTS, (2) VARIABLES LINKED TO INDIVIDUAL SCHOOL SITUATIONS, AND (3) TEACHER JUDGMENTS OF THE ROLE OF AUDIOVISUAL TECHNIQUES IN THE INSTRUCTIONAL PROCESS. ALL ANALYSES REPORTED CONTAINED THREE COMPONENTS--(1) A MEASURE OF A VARIABLE PRESUMABLY RELATED TO AUDIOVISUAL USE, (2) A MEASURE OF AUDIOVISUAL USE ITSELF, AND (3) A MEASURE OF THE STRENGTH OF THE RELATIONSHIP BETWEEN MEASURES (1) AND (2). (JH)

ED003760

B-081a

No1

BSSR

FACTORS ASSOCIATED WITH USE OF AUDIOVISUAL MEDIA BY TEACHERS IN ELEMENTARY AND SECONDARY SCHOOLS

BUREAU OF SOCIAL SCIENCE RESEARCH, INC.

WASHINGTON, D. C.

β - 081 a

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

BSSR: 363

FACTORS ASSOCIATED WITH USE OF AUDIOVISUAL MEDIA BY TEACHERS IN ELEMENTARY AND SECONDARY SCHOOLS

A REPORT PREPARED FOR THE U. S. OFFICE OF EDUCATION

BUREAU OF SOCIAL SCIENCE RESEARCH, INC.
1424 Sixteenth Street, N. W.
Washington, D. C.

Ivor Wayne, Research Associate
Nancy Kingsbury, Research Assistant

December 1964

ED003760

I. Introduction

Under contract O.E. #SAE-9026 to the Office of Education, HEW, the Bureau of Social Science Research, Inc., conducted a sample survey dealing with the use of audiovisual equipment and materials in public elementary and secondary schools. The procedures of the survey were described in the first volume of this series ("Audiovisual Programs in the Public Schools, Spring, 1962.").

The present report focuses on those factors which influence employment of audiovisual techniques among elementary and secondary school teachers. Responses by over eight thousand teachers to the Teacher Questionnaire (see Appendix B in Volume I) constitute the data from which the conclusions of the present report are derived. The distribution of responding teachers by grade (at the elementary level) and subject matter area (at the secondary school level) is shown in Table 1.1.

Table 1.1

DISTRIBUTION OF TEACHER RESPONDENTS
BY SUBJECT TAUGHT AND GRADE

Elementary Schools		Secondary Schools	
Grade	N	Subject	N
K-3	2114	Art	146
4-6	1567	English	1223
7-9	309	Languages	427
		Mathematics	762
		Music	245
		Science	735
		Social Studies	894
Total	3990	Total	4432

The analysis of factors presumed to be related to utilization of audiovisual techniques among high school and elementary school teachers follows the order in which these variables appear in the questionnaire. (A similar organization of material was used in Volume I.) For convenience, the variables presently reported can be classified as follows:

1. Ecological and demographic characteristics (size of district, size of school, teaching experience, educational attainment, previous training in audiovisual techniques, etc.)
2. Variables linked to the school situation itself (audiovisual information provided the teacher, opportunity of teachers to make suggestions to the administration concerning the selection of audiovisual materials and techniques, etc.)
3. Judgments by the teacher of the role of audiovisual techniques in the instruction process (audiovisual aids as an integral part of courses, type of classroom application preferred, etc.)

Since it has been shown (in Volume I) that use of different audiovisual media by teachers varied sharply by subject (or grade) taught, analyses are presented separately for each subject matter area and grade level.

As a general point, all analyses reported contain three components:

1. A measure of a variable presumably related to audiovisual use.
2. A measure of audiovisual use itself.
3. A measure of the strength of the relationship between the two variables.

Problems relating to the development of such measures are discussed below, prior to the presentation of substantive results.

II. Measuring the Use of Audiovisual Media and Its Relation to Key Variables.

The preceding report dealt with the responses of teachers pertinent to use of audiovisual media essentially in terms of dichotomies, i.e., use vs. non-use of a given medium or any medium. The proportions of absolute users (i.e., users of any medium) ran from 88 per cent to 96 per cent among three groups of elementary teachers by grade taught, while among secondary teachers, Science specialists ranked highest with 95 per cent and Mathematics teachers were at the bottom of the list with 45 per cent. (Table A-1, Appendix A)[1] For purposes of inter-subject comparisons (e.g., Science vs. English teachers) the dichotomy of absolute use/nonuse with the resultant "per cent users" is a satisfactory measure.

A more sensitive quantitative measure of use was needed to ascertain whether a relationship between level of use of audiovisual media and another variable existed within a subject or grade group of respondents. The group of Science teachers will serve as the vehicle to illustrate the type of problems encountered in the search for the proper measure and the eventual solution. As may be expected, not all Science teachers use all available media; furthermore, media are used with varying frequency by individual teachers. It is seen in Table 2.1 that the proportions of audiovisual users among Science teachers range from 82.2 per cent (films) down to 10.9 per cent (tape.). We also note that--on the average--Science

---

[1] Appendix tables are identified by a letter prefix while text tables are labeled in decimal notation where the first digit signifies the chapter in which the table appears.

Table 2.1

HOW SCIENCE TEACHERS USED AUDIOVISUAL MEDIA DURING A SEMESTER

Audiovisual Medium	Users Per Cent	Mean Frequency of Use Per Semester Of:	
		All Teachers	Actual Users
Films	82.7	11.0	13.3
Filmstrips	61.9	6.2	10.0
Overhead projector	19.9	2.3	11.6
Opaque projector	21.6	1.4	6.5
Slides	22.8	1.3	5.9
Television	25.9	1.2	4.7
Records	17.4	.7	4.1
Radio	18.7	.6	3.2
Tapes	10.9	.4	4.1
Total	281.8	25.1	

teachers employed three media per semester,[2] and that the mythical average teacher applied audiovisual media 25 times per semester, (total of column 2) of which almost half the time he employed films.[3] The third column in the table indicates that the top three media--film, filmstrip, overhead projector--when they are used at all, are employed much more frequently than the other equipment. This is particularly striking in the case of the overhead projector favored by fewer teachers than television, slides, or the opaque projector.

---

[2] 2.82 to be exact; from total of per cent column, divided by 100.

[3] These averages are quite unrepresentative of the sample of secondary teachers as a whole, since the Science teachers were at the top of the list of audiovisual users. The parallel figures for English teachers were 2.2 media and 14 applications per semester, Mathematics teachers--the lowest group--averaged only .9 and 6, respectively.

The table also points up the dilemma one would face in trying to arrive at a single measure of audiovisual use: one teacher may avail himself of films fifteen times per semester and ten times of television, while another teacher may show films ten times, filmstrips eight times, television seven times. Both employ audiovisual media on 25 occasions; is their level of use identical? and if not, who is the "heavier" user? In view of the fact that no adequate answers can be given to such questions, it is improper to combine instances of use of different media, ie., one film showing plus one overhead projection equal two audiovisual applications. Nor can one say that teacher A uses audiovisual media three times as often as B when A played records three times while B did so only once during the specified period. We may not state: A=3B, but we may assume that $A > B$.

With this assumption granted,[4] we proceed to measure audiovisual use by employing reported frequency of use of the medium preferred by teachers of a given subject (or grade) as the index of overall audiovisual use. The measure fulfills its role to the extent that the level of use of the favored medium is associated with use of other media. Table 2.2 shows that among science teachers, the index performs admirably: as level of use of films increases, (reading from left to right), use of any other medium rises.[5] As will be seen later, the favorite medium measure was quite satisfactory for all other groups of teachers.

---

[4] To put it in more technical terminology: Frequency of use of a medium will be considered an ordinal measure.

[5] The more detailed tabulation shown in the lower portion of the table for the "newer" media underlines the quantitative character of the association of films with other media.

Table 2.2

HOW USE OF THE FAVORITE MEDIUM (FILMS) WAS RELATED TO THAT OF OTHER AUDIO-VISUAL MEDIA: SCIENCE TEACHERS (N=735)

Audiovisual Medium	Level of Use of the Medium	Level of Use[a] of Favorite Medium (Films)			
		None N=127	Low N=197	Medium N=293	High N=118
		Per Cent			
Filmstrips	Any	52	60	63	73
Records	Any	17	15	18	21
Tapes	Any	6	8	11	22
Slides	Any	13	19	24	37
Radio	Any	17	19	17	23
Television	Any	21	26	26	32
Overhead Projector	Any	17	19	19	27
Opaque Projector	Any	14	16	23	34
Television	Low	20	23	21	19
	Medium+	1	3	5	13
Overhead Projector	Low	9	8	9	7
	Medium+	8	11	10	20
Opaque Projector	Low	9	10	12	20
	Medium+	5	6	11	14

[a] For definitions of levels of use, see page 7.

The most popular medium is the motion picture: it was the favorite of teachers of Art, Science, Social Studies, as well as those in grades 4-6 and 7-9. For English, Music, and lowest grade teachers (K-3), records predominated. Foreign Language instructors appear to use tapes and records in a complementary way, while among teachers of Mathematics, films barely topped filmstrips in popularity; these paired media were combined into a single index of measurement.

Throughout this report the following labels were used to denote levels of audiovisual use:

Level of Use		Frequency (Per Semester)
None		0
Low		1 - 5
Biweekly	"Medium"	6 - 9
Weekly		10 - 19
High		20 - 49
Very High[a]		50+

---

[a] Applicable only to Language and lowest grade (K - 3) teachers.

Returning to the relation of use of films and of other media by Science teachers (Table 2.2), we note that although there are indications of positive association for every medium listed, the association is not equally strong throughout. The rise in use of records or radio associated with level of use of the favorite medium, films, is less steep than for the remaining media. We may summarize the relation between Science teachers' use of favorite medium and other audiovisual media graphically as follows:

Association between favorite medium (films) and:	Symbol	Meaning of symbol (Direction and degree of association)[a]
Filmstrips; Tapes; Slides	++	Positive, significant at .01 level.
Overhead; Opaque; Television	+	Positive, significant at .05 level
Radio; Records	0	Association, if any, insignificant.

The symbolic shorthand of "++, +, 0" offers a convenient means to delineate the relationship between level of use of favorite medium and other audiovisual aids among the several groups of elementary and secondary teachers. The reader will notice that the negative symbol ("-") was not introduced -- simply because no instance of a significant relation of negative direction was found for any group and medium.[6] The relationships between use of favorite and other media for all groups of teachers are presented in Table 2.3. All told, the table deals with 83 relations[7] of use of favorite medium with other media manifested among the grade (subject) groups: of these 43 were positive and statistically significant.

---

[a] Degree of association was measured by nonparametric statistics (Phi or C coefficients) and the extent to which the measure observed differed from zero was measured by the size of its respective chi-square.

[6] Moreover, of the 40 instances of "0" only one showed a somewhat negative orientation while one-half of the remaining associations were positive in character without reaching conventional significance levels.

[7] From the 10 x 10 matrix (ten grade or subject groups vs. ten media) we eliminated not only the 12 cells of self-correlation, but also five cells of Language-tapes as not relevant to Art, Mathematics, Music, Science, and Social Studies.

Table 2.3

MEDIA ASSOCIATED WITH USE OF FAVORITE MEDIUM[a]

Grade or Subject	Favorite Medium	Association with Favorite Medium		
		0	+	++
Elementary				
K - 3	Records	Overhead		All others
4 - 6	Films		Overhead	All others
7 - 9	Films	L. Tapes,[a] T.V.	Radio, Records	All others
Secondary				
Art	Films	All		
English	Records	All others		L-tapes, Overhead, Opaque
Language	Records, tapes	All others		Slides
Mathematics	Films, filmstrips			All
Music	Records	All		
Science	Films	Radio, Records	Opaque, Overhead, T.V.	Filmstrips, Tapes, Slides
Social Studies	Films	All others		Slides

[a] L-tapes (language tapes) not considered pertinent for Art, Mathematics, Music, Science, Social Studies.

The following two chapters examine the relationship between reported audiovisual use and respondent characteristics, school situation variables or teacher judgments. With minor exceptions the factors presumably related to use are analyzed in the order in which they appear in the Teacher Questionnaire. Whereas in Chapter IV level of use of favorite medium functions as the quantitative yardstick of audiovisual use, the analyses in Chapter III employ the absolute use/nonuse dichotomy (in the form of proportion of users) as the key measure.

III. Factors Associated with Use of Audiovisual Media.

The data upon which the findings presented in this chapter are based are quantitatively summarized in the tables (A-1 to A-21) of Appendix A. In the interest of economy, only the most interesting results emerging from the tables are cited here. Since it is anticipated that the reader may want to consult the table under discussion for additional analysis, appendix table numbers are given in the headings of the sections to facilitate ready reference.

In this chapter we are concerned with the dichotomy of teacher use vs. non-use of any audiovisual media. We inquire: what factors about which the survey provided adequate information were found to be related to teachers' use of media? The absence of mention of mechanical ability, intelligence, teaching competence, personality characteristics does not exclude these elements from the catalogue of potentially powerful determinants of audiovisual use among teachers. It simply means that no relevant data were gathered.

In searching for factors which may increase or depress the probability of audiovisual use[8] we adopted a conservative point of view. Not enough is known about the area of our concern to permit the wholesale *a priori* construction of explicit hypotheses specifying the relationships between individual factors and audiovisual use to be tested by means of empirical data.

---

[8] e.g., inferred from the comparison between proportions of audiovisual users among those possessing and not possessing characteristic X.

Hence it seemed most appropriate to assume that a given factor, though presumably relevant, played no role in the decisions to use or not to use audiovisual media in the course of the fall semester 1961-1962. It was the null hypothesis -- factor X made no difference -- that was tested by the data in regard to all available variables.

The researcher's conservative orientation extended into the interpretation of results. When a null hypothesis appears sustained by the data, the summary statement will be expressed in the past tense, "factor X was not associated with audiovisual use" (i.e., in our study), to stress that the factor should not be labeled uninfluential without repeated research. On the other hand, a difference large enough to lead to the rejection of the null hypothesis -- a statistically significant difference -- may have little or no practical import. Consider the case in Table A-4 where it is shown that among intermediate elementary teachers 97.9 per cent of the male and 95.3 per cent of female respondents used audiovisual media: in view of the large numbers in the sample (N_1=328; N_2=1238) and the extremeness of the split of the dichotomous variable, (use vs. nonuse), the intersex difference of 2.6 percentage points turns out to be statistically significant well beyond the conventional .05 level! So much for statistical significance. The administrator scanning this finding for guidance in policy and practice could only conclude that more evidence was needed.

In other words, we have considered practical significance in reporting findings, taking statistical significance as a point of departure. In the absence of solid knowledge in the area, we have preferred to underidentify potentially decisive factors rather than to mislead explorers.

The factors which may be plausibly expected to be related to use or absence of use of audiovisual media were divided into three groups. The first group describes the respondent and the objective characteristics of his teaching situation: here we find ecological information (size of district and school in which respondent taught at the time of the survey), as well as the demographic and individual background characteristics (sex, educational attainment, length of teaching experience, previous training in audiovisual techniques, familiarity with specific items of equipment).

The common feature of variables assigned to the second group is the fact that they deal with the teachers' subjective descriptions of the school situation as it affects audiovisual activity: the adequacy of audiovisual information provided by the authorities, the opportunity of offering suggestions to the administration with respect to audiovisual equipment, the nature of assistance needed and obtained, and the types of problems encountered in employing audiovisual media.

The third group of variables presented in the analysis of this chapter focuses on the respondents' judgments of the best role of audiovisual media and their preferences among several possible functions that audiovisual techniques may serve in the classroom.

A. How Respondent Characteristics Were Related to Audiovisual Use.

1. Size of School District (Table A-2)

In smaller districts the proportion of audiovisual users was somewhat smaller among elementary teachers and among English instructors on the secondary level. The stress here is on the "somewhat", since the relationship is by no means powerful; the lowest elementary teacher group (grades 7 - 9, in the smallest districts) still registered 84.2 per cent users. Secondary teachers of subjects other than English exhibited similar proportions of users of audiovisual media in all sizes of districts: the Science teachers, followed by the instructors in Social Studies, Fine Arts, and Foreign Languages, registered uniformly high percentages of users (around 90 per cent), while only two out of five teachers of Mathematics used audiovisual media in all districts but the very small (150 - 1199 pupils) where the proportion was noticeably higher, i.e., three fifths.[9]

2. Size of School (Table A-3)

The proportions of audiovisual users among elementary teachers were similarly high in all three categories of schools[10], running from 90 to 97 percent and thus seemed unrelated to size of respondents' school. Quite different was the situation among secondary teachers. For all subjects but Mathematics the summary statement "the larger the school the higher the proportion of audiovisual users" held, whereas the responses of the instructors in Mathematics produced the opposite type of progression (the percentages being 61, 42, 38, as the size of school increased.). As was pointed out in the preceding section, audiovisual users were relatively much more numerous among Mathematics teachers in the smallest districts than in the larger systems. Small districts, in turn, were composed of small schools almost exclusively. That size of school rather than district is the more powerful factor in raising the level of usage among Mathematics instructors is seen from the fact that respondents in small schools of districts other than the smallest show an equally high proportion of audiovisual users (60 per cent). The conclusion that circumstances exist in small but not in larger schools that induce Mathematics teachers to employ audiovisual techniques does not imply that these circumstances are inherent in the size of the school house.

---

[9] It is shown in Section A.2. that "small school" rather than size of district was the decisive variable.

[10] The only exception, the entry of 66 per cent among small school teachers of grades 7 - 9, is to be taken with some caution, since it is based on a number of cases (N=44) comparatively much smaller than the other per cent figures for elementary teachers representing several hundred cases.

At least two potential explanations come to mind:

A. In small schools teachers are more often called upon to teach another subject on a steady or pinch-hit basis;[11] many teachers of Mathematics may have actually used audiovisual techniques in covering other subjects but Mathematics.

B. Another effect of the first statement: instructors forced to handle an additional subject with which they are not too familiar may frequently fall back on audiovisual media as "emergency solutions".

3. Sex of Teacher (Table A - 4)

There is an almost complete absence of men among lowest grade teachers.. Hence, only two elementary and six secondary groups remain from which to draw inferences: in all eight groups the relative number of audiovisual users was slightly higher among male than among lady teachers, the largest difference obtaining in the 7 - 9 grade bracket (92.4 per cent vs. 82.2 per cent; difference significant at the .05 level).

4. Educational Attainment of Respondent (Tables A - 5, A - 6)

Again, the pattern in the low-using Mathematics group was different from the picture emerging elsewhere in the tabulation: possessors of the masters' degree produced a percentage of 41.6 per cent while of those who had not progressed beyond the bachelors' level 48.0 per cent reported having employed audiovisual techniques. The relative frequencies of audiovisual users were lower among the bachelors than among the masters in all other subjects and on all three elementary levels. The rule "the lower the educational achievement of a given group the lower the proportion of audiovisual users in it," was also supported by the reports of elementary teachers without a college degree whose audiovisual use was lowest, grade for grade. It must be borne in mind, however, that instructors of Mathematics contradicted this nutshell summary and that in some instances the differences in the expected direction were very slight (e.g., Science, Social Studies).

---

[11] The proportion of teachers who taught Mathematics and another subject ran as follows: In small schools 32 per cent, in medium size schools 18 per cent, in large schools 8 per cent of all teachers offering Mathematics as their primary assignment.

Would teachers having a degree in education be more apt to avail themselves of audiovisual techniques than those who had earned their degrees in their own subjects? The data in Table A-6 were tabulated to facilitate testing this hypothesis for secondary teachers in six subject areas. The analysis led to a clearly negative answer to the above question:[12] in all instances the differences were negligible and as for direction, they split 3/3.

5. Length of Teaching Experience.[13] (Table A - 7)

Years of teaching experience do not affect the proportion of audiovisual users observed among the three levels of elementary teachers. The inconsistent pattern of minor variations found among secondary teachers led to the same conclusion, despite the fact that the data were analyzed by means of considerably finer categories than those shown in the respective appendix table. One deviation is worthy of note: veterans of twenty years and over among teachers of Mathematics (and, to a lesser degree, among Social Studies and Language teachers) reported a clearly smaller relative number of audiovisual users than their colleagues of shorter teaching careers.

---

[12] This does not eliminate the possibility that a degree in a field different from that the respondent taught may be associated with significantly higher or lower audiovisual use. In the analysis by level of use of favorite medium it was found, for instance that Mathematics teachers with an academic background in Science exceeded their other colleagues in audiovisual use. (Percentages of biweekly users: Science background 24 per cent, Education 15 per cent, Mathematics 12 per cent).

[13] Experience here means simply "number of years taught" and is independent of training exposure discussed in the next section.

6. Training in Audiovisual Techniques. (Tables A - 8, A - 9)

Whether they had any special training in matters audiovisual or not, 19 out of 20 Science teachers reported using audiovisual techniques. This was the only instance in which teachers with previous specialized training had not registered a higher proportion of audiovisual users than their untrained colleagues. . Table 3.1, below, illustrates the higher audiovisual utilization by teachers who had taken specialized training in audiovisual techniques.

Table 3.1
PROPORTION OF AUDIOVISUAL USERS
AMONG TEACHERS TRAINED AND UNTRAINED IN AUDIOVISUAL TECHNIQUES

Grade or Subject	Proportion Trained	Per Cent Users	
	Per Cent	Trained	Untrained
Elementary			
K - 3	66	96	92
4 - 6	66	97	93
7 - 9	61	90	84
Secondary			
English	49	87	82
Fine Arts	54	93	87
Language	52	93	85
Mathematics	51	51	40
Science	58	95	95
Social Studies	60	93	86

Differences in the above table, with the exceptions of grades 7 - 9 and Science, were statistically significant. Whereas the conclusion seems at hand that audiovisual training was positively related to probability of audiovisual use, the situation is less clear-cut when it is asked what type of training is "most effective". On the basis of Table A - 9 one may wish to say that the combination of College and Inservice training does best for elementary, English and Social Studies teachers, since they exhibited the highest proportions of audiovisual users approaching 100 per cent saturation. On the other hand, these groups of teachers (and the Science and Fine Arts instructors) reported percentages in the 90's for all types of training, making the advantage of College plus Inservice practically less spectacular. Among Mathematics teachers, those who went through an Inservice program have an edge over those who took a College course (61 per cent vs. 47 per cent).

7. Familiarity with Equipment. (Tables A - 10, A - 11)

As might have been expected, audiovisual users of all grades and subjects are more frequently familiar with projectors (film, slide-strip, opaque, overhead) and tape recorders than their colleagues who made no use of audiovisual techniques during the fall semester 1961-2. In each of 45 comparisons (five items of equipment, nine groups of teachers), the relative number of those familiar with the item was higher among the audiovisual users: the differences in their favor ranged from 7.2 (Mathematics, slide-strip projector, 84.3 per cent-77.1 per cent) to 57.2 percentage points (Language, tape recorder, 88.4 per cent-31.2 per cent).[14] It is interesting to note that the order of familiarity of the five items of equipment--derived from the proportions of those who have operated the item--was the same for the respective users and nonusers in a given grade or subject.[15] While all nine groups agreed that the overhead projector was least often familiar (rank 5), followed by the opaque projector (rank 4), the rank order of the three more familiar items of equipment varied from group to group. Table 3.2, below, shows the respective orders.

---

[14] Table A - 10; every difference in favor of the users was statistically significant except for Science/opaque projector.

Table 3.2

RANK ORDER OF FAMILIARITY OF THREE ITEMS
OF AUDIOVISUAL EQUIPMENT

Group	Equipment		
	Slide-strip Projector	Film Projector	Tape Recorder
All Elementary, Mathematics, Social Studies	1	2	3
English	1	3	2
Science	2	1	3
Fine Arts, Language	2	3	1

Returning to the analysis of the pertinent appendix table (A - 10) we find that the proportion of those who had operated the above three items of equipment in the past and yet had used no equipment during the survey semester was surprisingly high.[16]

---

[15] Only one exception was noted: among Science teachers, users were more often familiar with the tape recorder (rank 3) than with the opaque projector (rank 4) while nonusers reversed the ranks for these two items of equipment.

[16] Except among Language instructors.

Thus, it would seem that few teachers refrained from audiovisual media because they had not been exposed to the equipment. On the other hand, it is possible to imagine that some persons may have been discouraged from steady audiovisual use by past experience with intractable equipment. In general, where data were adequate to make comparisons, relatively more nonusers than users rated a specific item difficult to operate.[17] However, the proportions in both groups were small: of the five items rated, only two -- the film projector and the tape recorder -- were labeled difficult to work with by 20 per cent of any subgroup. When the arbitrary cut-off point is lowered to 15 per cent of any respondent group we are left with the nine comparisons of Table 3.3.

Table 3.3

EQUIPMENT RATED "DIFFICULT TO OPERATE" BY 15 PER CENT, OR MORE, OF ANY RESPONDENT GROUP.[a]

Grade or Subject	Number	Equipment: Film Projector	Tape Recorder	Overhead Projector	Opaque Projector
		Per Cent Saying "Difficult to Operate"			
K - 3					
Users	1785	25	21	-	8
Nonusers	77	26	24	-	16
4 - 6					
Users	1392	18	15	-	-
Nonusers	42	17	16	-	-
English					
Users	808	26	-	15	-
Nonusers	116	28	-	18	-
Social Studies					
Users	735	12	9	-	-
Nonusers	60	16	17	-	-

[a] For more detailed data, see Table A - 11

[17] In 20 out of 24 comparisons, Table A - 11.

No generalizations may be drawn beyond the statement that the film projector appeared to present difficulties to more teachers than the other items of equipment, while slide-filmstrip projectors elicited objections least frequently. It also seems fair to say that the Science teachers, whether audiovisual users or not, were least often handicapped by mechanical difficulties. Only in the cases of the opaque projector, faced by the lowest grade teachers, and the tape recorder in the hands of Social Studies instructors, may one detect a suggestion that difficulties experienced in the past may have discouraged further use. It is possible that the more detailed analysis by school as a unit may shed more adequate light on this topic.

B. The School Situation in Regard to Audiovisual Media as Perceived by the Teachers.

The preceding section was built essentially on self-reports provided by the teachers surveyed: they supplied presumably factual information on their past education, their teaching career, their training in audiovisual techniques, their personal experiences in handling some items of audiovisual equipment. The variables analyzed in the present section are of a different nature. The responses here are not designed to provide objective information about surrounding school conditions; rather, they should serve to provide insight into the way the individual teachers perceived these conditions. The individual judgments focus on the administrative support of audiovisual activities and thus may impinge on the psychological conditions under which teachers use or do not use audiovisual media.

8. Audiovisual Information Prepared by the School District. (Tables A - 12, A - 13)

One element of administrative support of matters audiovisual is the continuous supply of information relevant to the classroom needs of the teacher. The respondents were free to indicate whether such pertinent information was indeed provided and,if so, whether they deemed it sufficient or incomplete. Use of media was found to be definitely related to opinion on information provided. Among those stating that district-prepared information was not supplied, the relative number of audiovisual users was lower, in each grade and subject group. (Appendix Table A - 12). When data are combined for the elementary and secondary levels, the picture shown in Table 3.4 emerges.

Table 3.4

USE OF MEDIA AND RATING OF AUDIOVISUAL INFORMATION PROVIDED BY DISTRICT

Level	Proportion of Users (In Per Cent) among Respondents Rating Information:		
	"Sufficient"	"Incomplete"	"Not Provided"
Elementary	96	95	86
Secondary	82	87	75

Among elementary teachers,things were just as one could have expected them to be: those without district-prepared information showed a significantly lower proportion of audiovisual users than the other two groups of raters; there was no difference between those saying "sufficient" and "incomplete."[18] Not so with the secondary teachers. Again we find those claiming no information sharply lower in proportion of users, but this time those labeling the information supplied "incomplete" exceeded the "sufficient" group in relative number of users. Table 3.4, by presenting overall proportions, actually conceals interesting contrasts between teachers of different subjects. Two patterns of distributions of responses may be discerned: one shared by Fine Arts and Science teachers, and the other best exemplified by the Mathematics instructors and common, to a lesser degree, to English, Language, and Social Studies. The respective comparison is shown in Table 3.5.

Table 3.5

RATING OF AV INFORMATION PROVIDED BY DISTRICT AND
USE OF MEDIA: FINE ARTS AND MATHEMATICS TEACHERS.

Subject	Proportion of Users (In Per Cent) Among Respondents Rating Information		
	"Sufficient"	"Incomplete"	"Not Provided"
Fine Arts	94	92	84
Mathematics	44	58	36

Lest the impression be given that the best way to increase the proportion of audiovisual users among teachers of Mathematics, and of several other subjects, is to offer them skimpy audiovisual information, we present an analysis where the data are oriented in the other direction. Table 3.6 shows the ratings of audiovisual information as supplied by users and nonusers of audiovisual media.

---

[18] The figures were almost the same when analyzed by grade. (Table A - 12, three top rows).

Table 3.6

RATINGS OF AUDIOVISUAL INFORMATION
PREPARED BY DISTRICT, AV USERS VS. NONUSERS

Level	Per Cent Giving Response		
	"Sufficient"	"Incomplete"	"Not Provided"
Elementary			
Users	68	21	11
Nonusers	50	19	31
Secondary			
Users	51	29	20
Nonusers	50	19	31

Here it is seen that:

1. Nonusers on either level stated much more frequently than audiovisual users that no information was provided by the authorities;

2. One-half of all secondary teachers (users and nonusers alike) and of nonusers among elementary respondents termed information given them sufficient, while two-thirds of elementary teachers who used the media expressed this opinion.

3. Among elementary teachers, regardless of audiovisual use, one-fifth found the information provided inadequate while among secondary teachers dissatisfaction with the information was voiced by three in ten in the user group, as opposed to two in ten among the nonusers.

We have presented both analyses[19] so as to allow the reader to draw hypothetical inferences in the direction of his preference.

9. Teachers' Suggestions for Acquisition of Audiovisual Equipment. (Table A - 14)

One indication of the spirit of cooperation and mutual support of faculty and administration in matters audiovisual is the opportunity afforded teachers to suggest purchase or rental of appropriate materials and equipment. When such suggestions are followed by positive administrative action, the teacher's impression of cooperative support is reinforced. It is plausible to expect that this frame of mind is conducive to use of audiovisual equipment, both of that presently available and of equipment becoming available when received. In analyzing the pertinent data we were aided by the fact that -- according to testimony of our respondents -- the overwhelming majority of those suggesting acquisitions saw their recommendations followed "almost always" or "frequently ."

In every grade and subject group, the relative number of recommenders was significantly[20] higher among audiovisual users than among nonusers; the respective proportions of suggesters hovered around two-thirds in the former as opposed to two-fifths in the latter.

---

[19] And two tables in the Appendix, A - 12 and A - 13.

[20] At the .01 level; see Table A - 14.

Nonusers claimed much more frequently -- more than twice as often -- than AV users that they were not offered the opportunity to make suggestions for the acquisition of equipment. Similarly, relatively more nonusers admitted not having exploited the opportunity given them. Figures typical of the percentages[21] observed among users and nonusers are shown below.

Table 3.7

TEACHERS' OPPORTUNITY TO SUGGEST ACQUISITION
OF EQUIPMENT: STATEMENTS OF USERS VS. NONUSERS

A. Had Opportunity to Suggest AV Equipment (In Per Cent)

	Yes		No	
	Typical[a]	Range[b]	Typical[a]	Range[b]
Users	89	(85-92)	11	(8-15)
Nonusers	74	(67-87)	26	(13-33)

B. Used Opportunity to Suggest AV Equipment (In Per Cent)

	Yes		No	
	Typical[a]	Range[b]	Typical[a]	Range[b]
Users	77	(74-81)	23	(19-26)
Nonusers	53	(48-64)	47	(36-52)

[a] Median per cent of the nine respondent groups

[b] Range of per cent of the nine respondent groups

---

[21] Really the medians of the distribution of percentages reported by the nine respondent groups; the two levels (elementary and secondary) were combined because their patterns of responses were almost identical.

The largest range in Table 3.7 is found among nonusers who stated that they had no opportunity of making AV suggestions. In other words, there were marked differences between grade and subject groups in this respect. Before showing the complete percentage distributions for the nine groups, we wish to draw attention to the nature of our data. First of all, it must be borne in mind that we are dealing with expressions of opinions of teachers: respondents report their subjective perceptions which may or may not agree with the administrative point of view. Thus, we don't know whether these persons are objectively deprived of the opportunity to communicate their suggestions in everyday practice. Secondly, the actual lack of such opportunity may pervade the whole school due to uniform administrative policy, or it may be limited to one or several departments.[22]

There is some indication that being deprived of the opportunity of suggesting acquisition of AV equipment and materials may be subject-linked: Table 3.8 shows that the proportions of users and nonusers not offered the opportunity follow almost the same order when analyzed by grade and subject.[23]

---

[22] Worse yet, restrictions may be placed on certain members of the faculty, e.g. the most junior teachers in the department.

[23] The rank-order correlation coefficient $r_s = .77$.

Table 3.8

PROPORTION OF AV USERS AND NONUSERS WHO SAID THEY HAD NO OPPORTUNITY TO SUGGEST ACQUISITION OF AUDIOVISUAL EQUIPMENT, BY GRADE AND SUBJECT

Grade or Subject	Users		Nonusers	
	Per Cent	Rank	Per Cent	Rank
K - 3	14.8	1	33.3	1
4 - 6	13.3	2	32.3	3
7 - 9	11.8	4	29.0	4
English	10.2	7	19.4	7
Fine Arts	11.9	3	32.4	2
Language	7.7	9	27.1	5
Mathematics	10.5	6	13.4	9
Science	11.0	5	26.3	6
Social Studies	9.6	8	17.7	8

It also appears that with the sole exception of the Fine Arts teachers whose reported proportions fit in with those of the elementary respondents, secondary faculty members as a whole are more frequently offered the opportunity to make suggestions to their administrations regarding audiovisual equipment than their colleagues on the elementary level.

10. Help Needed by Teachers to Use Media Effectively. (Table A - 15)

In reply to Question 21 of the Teacher Questionnaire,only a small proportion of the respondents stated that they needed no help in order to use audiovisual aids effectively: about nine per cent among audiovisual users and about twice as many among nonusers. Whether this means that the latter group became nonusers because they were given no help, or that they required no assistance because they did not use the media, is impossible to decide on the basis of these data. In general, continuous supply of information about new materials is the most important form of assistance our respondents require, although some teachers (e.g., those of Foreign Languages) would consider even more essential suggestions of relevant existing materials and of the best way to apply them in the classroom. Audiovisual users much more often than nonusers expressed the need to be kept abreast of the flow of new materials: this pattern of responses prevails in all grade and subject groups. The need for technical assistance, i.e., in the know-how of operating, repairing, maintaining the equipment, played a minor role except for the Language, English, and lowest grade teachers. In the last named group, almost one-third of the nonusers expressed their need for technical help.

By analyzing responses to Questions 21 and 22 jointly, we are in a position to establish how many of those respondents who needed help were given such help. When the number of persons (in a respondent group) who gave a positive answer to Question 22 ("were usually given assistance"-- did get help) is divided by the number of persons needing help (by their response to Question 21), we obtain a "Get help/Need help" quotient, or GNQ.[24]

---

[24] Although we have multiplied the fraction by 100,so that it is, in effect, a percentage, we have preferred not to label the resultant measure GNP, to avoid confusion with the more usual meaning of the abbreviation.

For the secondary teachers the respective GNQ's are shown below, by subject and use.

Table 3.9

"GET HELP/NEED HELP QUOTIENT"
BY SUBJECT AND USE

Subject	Users	Nonusers	Total
English	64.8	57.6	63.8
Fine Arts	62.3	33.3	59.8
Language	64.6	52.4	63.3
Mathematics	65.8	59.1	62.4
Science	64.7	62.0	64.6
Social Studies	70.6	62.1	69.9
Mean	65.5	54.4	64.0

About one-third of our secondary school teachers did not get the type of help they said they needed most. Table 3.9 also leads to the conclusion that no one subject was particularly underprivileged although the Fine Arts teachers were somewhat worse off than other groups, while instructors in the Social Studies led the list.[25] Audiovisual users, as may be seen, had higher GNQ's in all six instances than nonusers in the same discipline. Clearly some kind of relationship existed between the decision not to use audiovisual equipment and the (frustrating?) phenomenon of not getting help most needed -- but it is equally clear that no cause-effect link may be inferred without further research.

---

[25] The strikingly lower batting average of nonuser Fine Arts teachers is to be interpreted with restraint, since it is based on only thirty cases. All other cells contain considerably larger numbers.

11. Problems Encountered in Using Audiovisual Aids. (Tables A - 16, A - 17, A - 18)

In the last section of the Teacher Questionnaire (Q.36) respondents were presented with a list of twelve types of difficulties sometimes experienced in using audiovisual aids and asked to indicate whether an entry was an important problem for them. They were also given an opportunity to show that they had no difficulties whatsoever in using audiovisual aids. Only a small fraction of our respondents, about 5 per cent, checked this very optimistic statement.

The list of twelve difficulties produced the following results:

A. Only the first item ("Not enough time to preview or prepare materials adequately") elicited relatively more yesses from the audiovisual users than from the nonusers..

B. The two groups of teachers seemed well matched in their misgivings as far as two items on the list were concerned (12, "Materials or equipment frequently not available when needed"; 7, "Much equipment in poor repair or obsolete").

C. On the remaining nine items, the nonusers supplied higher proportions of checkmarks than audiovisual users. The imbalance in every item was powerful: Nonusers' percentages of "complaints" were higher in all nine respondent groups except for two items where the proportion among nonusers was higher in eight out of nine comparisons.[26]

---

[26] Items 9 ("Too much 'red tape' in ordering and scheduling"), and 4 ("Classroom not properly set up for AV aids").

That those who did not employ audiovisual techniques in the fall semester 1961-2 had more often experienced difficulties in using the media and materials than their user colleagues is clearly brought out in Table 3.10 below.

Table 3.10

AVERAGE NUMBER OF DIFFICULTIES ENCOUNTERED IN USING AUDIOVISUAL AIDS[a], BY GRADE AND SUBJECT

Grade or Subject	Users	Nonusers
K - 3	3.2	4.2
4 - 6	3.3	4.0
7 - 9	3.9	4.9
English	4.4	4.7
Fine Arts	3.4	4.7
Language	4.2	4.9
Mathematics	4.4	4.8
Science	3.5	4.8
Social Studies	4.0	5.0

[a] Mean number of "yes" responses to list of 12 items (Q. 36, Teacher Questionnaire).

In looking at the answers to our battery of difficulties, we found it advantageous to rearrange the list so that similar problems would be grouped together. Three such problem areas may be distinguished:[27]

a. Problems inherent in the nature or absence of materials.

---

[27] This is also the arrangement of appendix tables A - 16, 17 and 18.

b. Problems dealing with timing and scheduling;

c. Technical problems connected with equipment.

In order to facilitate cross-reference with the respective entries in the appendix tables, we present, in table 3.11 below, an enumeration of items in each problem area, the median per cent of "yes" responses to the item by the nine user and nonuser groups, together with an indication of number of times users' "yeses" exceeded the proportions registered by nonusers.

The median percentages presented in table 3.11 serve the useful purpose of establishing typical magnitudes for the group of users and nonusers of audiovisual media. We learn about the relative popularity of certain difficulties: about two-thirds of the respondents express the opinion that preview time is too short, almost one-half deplore the fact that materials or equipment are not available when needed, while the same proportion is concerned with the physical conditions of the classroom inappropriate to AV techniques. On the other hand, few complain that equipment was obsolete, in poor repair or difficult to handle.

The reader interested in the deviations from these general patterns of responses should consult the detailed appendix tables.[28]

---

[28] A - 16, 17, 18. There he will find, for instance, that teachers of Mathematics said much more frequently than the other respondents that few good materials existed in their discipline (63 per cent of users, 73 per cent of nonusers, as opposed to medians for all groups of 30 per cent, 42 per cent, respectively) and that materials were difficult to integrate into lesson plans (43 per cent, 60 per cent vs. medians 19 per cent, 38 per cent).

Table 3.11

USERS AND NONUSERS LOOK AT THREE PROBLEM AREAS IN THE USE OF AUDIOVISUAL EQUIPMENT AND MATERIALS

Item No.	Problem Area	Users	Nonusers	% Users > % Nonusers[b]
		(Per Cent "yes"[a])		
	a. Materials			
2	AV materials difficult to integrate into lesson plans	19	38	0
8	Few good AV materials in subject area	30	42	0
10	Students see AV as "entertainment" and do not study it	32	38	0
12	Materials or equipment frequently not available	44	48	4
	b. Timing and scheduling			
1	Not enough time to preview or prepare materials	65	60	6
3	Not enough information available about materials	26	38	0
9	Too much "red tape" in ordering and scheduling	32	32	1
5	Not enough time for basic classroom teaching	26	42	0
	c. Technical problems			
7	Much of the equipment is in poor repair or obsolete	12	15	4
4	Classroom is not set up properly for AV aids	46	53	1
6	Much of the equipment is too difficult to operate	8	16	0
11	AV aids are too expensive for the results achieved.	13	24	0

[a] Medians of the respective percentage distributions.

[b] Number of times, $P_u > P_{\overline{nu}}$ (nine comparisons).

C. Judgments of the Role and Utility of Audiovisual Aids

Responses to three questions may be considered indicative of teachers' attitudes toward AV and opinions of the role, utility and functions audiovisual aids may have in the classroom situation.

12. Classroom use of self-prepared or personal AV materials (Table A - 19)

Both audiovisual users and nonusers were asked whether they brought their own materials into the classroom and whether they themselves prepared any materials for school use. Appendix Table A - 19 summarizes the heavily one-sided though not unexpected findings. Users brought in their own slides, records, movies, etc., much more frequently than nonusers teaching the same subject: in this classification Fine Arts teachers led the field with 86.2 per cent whereas Science and Mathematics instructors brought up the rear (44.5 per cent, 29.1 per cent, respectively). Among nonusers, the percentages of those bringing in their own aids ranged from 43.2 per cent (Fine Arts, again) down to 15.0 per cent (intermediate grade school) -- perhaps somewhat higher than one might have expected.

The number of creators of *ad hoc* audiovisual aids was higher among users in all fields and grade levels with the sole exception of those in Fine Arts, where the proportions of AV users and nonusers were almost identical.

If the reports of more widespread effort in preparing and bringing in one's own materials are relevant at all, they must mean that users, as a group, have a more positive attitude toward audiovisual aids and their utility. The investigator is aware that this is not a major discovery; but if evidence had been developed to show that past audiovisual users less frequently made the effort possibly indicative of positive attitude, we would have considered the result implausible. The preceding paragraphs fulfill the comforting function of corroborating the obvious.

13. Audiovisual materials considered an integral part of a course. (Table A - 20)

A similar picture emerges when we inquire into our respondents' opinions as to the best use of audiovisual materials in relation to the organization of their courses. Here, within every grade and subject group, those who had availed themselves of the media and materials say much more frequently than their nonuser colleagues that they view audiovisual materials as an integral part of a course. (Table A - 20). The difference in proportion of holders of this opinion between users and nonusers is particularly marked among Language instructors: 52.0 per cent vs. 12.5 per cent. When all nine subject and grade groups are considered together, we obtain the following summary statistics:

	Per Cent Saying "Integral Part of Course"	
	Median	Range
Users	46.3	33.1 - 52.5
Nonusers	26.6	12.5 - 29.5

The medians shown here illustrate the fact that about one-half of the users and nearly three-fourths of the nonuser respondents chose answers assigning a less essential role to audiovisual materials in relation to course organization ("For supplementary information ", "To highlight a special unit").

14. Seven functions of AV techniques: teacher preferences (Table A - 21).

Teachers' opinions of appropriate applications of audiovisual media in the classroom may yet be approached in another manner. Respondents were given an opportunity (in Q. 37) to indicate how often they employed the media to achieve any one of seven listed purposes, e.g., to motivate students to learn, to enrich material given in text or class discussion, etc. As a matter of course, users of audiovisual materials checked the category "Very often" in respect to several or all seven functions relatively much more frequently than nonusers so that proportions could not be used for direct comparison of relative preferences of the two groups. The percentage of a group checking "Very often" for a given function had to be translated into a measure with respect to the group's own (mean) level of positive checkmarks across all functions; in other words, percentages were transformed in such a manner that the group's preference for a given function was made relative, and the relative preferences of the two groups compared in regard to the function.[29] These "relative preference scores" are shown in Table A - 21.

---

[29] Proportions of respondents in a group saying AV media served a given function "Very often" were treated like scores; a mean for the group over all functions was computed as well as the standard deviation for the distribution. Standard scores, $z=(X-\bar{X})/s$, were calculated and transformed into a distribution with a mean=50 and s=20 by the formula $Z=50+[20(X-\bar{X})/s]$, to avoid negative numbers and so that the distribution would approximate the more familiar range of 0 to 100. The technique permits direct comparison between user and nonuser groups despite very different absolute levels of "Very often" responses. (For description of transformed standard scores, see Edwards, A. L. Statistical Methods for the Behavioral Sciences. New York: Holt, Rinehart and Winston, 1962, pp. 106-107).

The analysis of relative preferences may be summed up in the following statements:

1. "Enrichment of materials" is the favorite function of audiovisual aids, so say both users and nonusers (except for Fine Arts and Mathematics teachers of the latter group.) Although this function is clearly the winner as far as the total group of nonusers is concerned, the judgments of the users are even more one-sided, making it their odds-on favorite.

2. There is no consensus as to second place: every group makes its own choice. The lowest grade teachers (both users and nonusers) would put secondary emphasis on audiovisual aids as tools for the motivation of students to learn, and so would AV users of the highest grades. Language teachers, on the other hand, saw second highest appeal in the "cultural activity" aspect of the media, while Social Studies teachers would employ audiovisual aids to provide general background for a unit.

3. Comparing relative preferences of users and nonusers (holding grade or subject constant) we find that users would place relatively heavier emphasis on student motivation and the review function of audiovisual materials;[30] nonusers' relative preferences ran much more often toward illustration of a principle or presentation of new material as AV goals.[31]

The reader is invited to consult appendix Table A - 21, since it contains many detailed data of potential interest that could not be reproduced or paraphrased in the text.

---

[30] Reading the table vertically: user "scores" exceeded the respective nonuser "scores" 7:2 (motivation); 6:2 (review).

[31] Users to nonusers: 1:8 (illustration); 2:6 (new material).

IV. Factors Related to Level of Use of Favorite Medium

The preceding chapter presented the results of an inquiry into the relationship of fourteen factors to the audiovisual use of those teachers who provided the underlying data. The crucial variable, "AV use," was represented by the simple dichotomy of use/nonuse of any audiovisual media and respondents were classified accordingly, as users or (absolute) nonusers within each subject or grade grouping. The comparison of the responses of the two classes was the backbone of the previous analysis.

In the present chapter we reexamine the data using a more refined measure, the level of use of the group's favorite medium, to relate AV use to the fourteen factors cited earlier. In order to make the most of the information available, we modify the analytical technique of the preceding chapter in several ways.

1. Since records are the preferred medium of the Music teachers, while Art teachers favor films, their responses must be treated separately. These two groups replace the single Fine Arts group of the foregoing chapter. Thus we will be dealing with ten rather than nine study groups.

2. Level of use can vary from None (frequency per semester = 0) to Very High (over 50 times); six categories of level are employed in the analysis;[32] in order to preserve statistically adequate numbers, data of respondents in adjacent categories are sometimes combined.

Table 4.1 shows the respective distributions.

---

[32] See p. 7 for the meaning of the respective labels.

Table 4.1

LEVEL OF USE OF FAVORITE MEDIUM IN TEN STUDY GROUPS

<table>
<tr><th rowspan="2">Study Groups</th><th rowspan="2">Favorite Medium</th><th colspan="6">Level of Use[a]</th><th rowspan="2">Total Number</th></tr>
<tr><th>O</th><th>L</th><th>B</th><th>W</th><th>H</th><th>VH</th></tr>
<tr><td colspan="9">Elementary</td></tr>
<tr><td>K-3</td><td>Records</td><td>391</td><td>278</td><td>171</td><td>437</td><td>465</td><td>372</td><td>2114</td></tr>
<tr><td>4-6</td><td>Films</td><td>322</td><td>416</td><td>216</td><td>399</td><td>214</td><td></td><td>1567</td></tr>
<tr><td>7-9</td><td>Films</td><td>103</td><td colspan="2">143</td><td colspan="3">63</td><td>309</td></tr>
<tr><td colspan="9">Secondary</td></tr>
<tr><td>Art</td><td>Films</td><td>50</td><td>49</td><td colspan="4">47</td><td>146</td></tr>
<tr><td>English</td><td>Records</td><td>459</td><td>483</td><td>101</td><td colspan="3">180</td><td>1223</td></tr>
<tr><td>Language</td><td>Records/ tapes</td><td>83</td><td colspan="2">101</td><td>76</td><td>85</td><td>82</td><td>427</td></tr>
<tr><td>Mathematics</td><td>Films/ Filmstrips</td><td>486</td><td>164</td><td colspan="4">112</td><td>762</td></tr>
<tr><td>Music</td><td>Records</td><td>42</td><td colspan="2">52</td><td>41</td><td>110</td><td></td><td>245</td></tr>
<tr><td>Science</td><td>Films</td><td>127</td><td>197</td><td>113</td><td>180</td><td>118</td><td></td><td>735</td></tr>
<tr><td>Social Studies</td><td>Films</td><td>223</td><td>288</td><td>142</td><td>168</td><td>73</td><td></td><td>894</td></tr>
</table>

[a] Legend: O = None, L = Low, B = Biweekly, W = Weekly, H = High, VH = Very High. For definitions of terms see p. 7. Frequencies in spaces between columns are totals obtained by combining adjacent levels.

3. Another way in which the present chapter differs from its antecedent is in the statistical measure of the relationship of a given factor to AV use. Simple nonparametric statistics were satisfactory so far; for instance, coefficients of association (based on chi-square) could help establish

whether the relative number of nonusers was higher among respondents with Bachelors or Masters degrees and, by analogy, whether those without a college degree (among elementary teachers) showed a higher proportion of nonusers than the remaining respondents.

Where AV use is expressed in the form of an ordinal variable in 3-6 ordered categories[33] and the potentially related factor appears either as a naturally qualitative dichotomy (AV training/no training) or an ordered set of categories (no degree, B.A., M.A.), a new situation arises.[34] In the first instance we use the Kolmogorov-Smirnov test[35] to establish that one group of the dichotomy (e.g., those with AV training) reports a statistically significantly different, higher, level of use than the other. In the second case, it is required that the correlation between two ordered polytomies be measured, e.g., educational attainment of respondents (three categories) vs. level of use (five categories). A recently published[36] derivation of rho$_g$, a generalized form of Spearman's rank-order correlation coefficient, permits us to perform this type of measurement.

---

[33] None, Low, Biweekly, Weekly, High, Very High.

[34] The nature of the variables precludes the use of interval-level statistics (see our argument to that effect on p. 5); chi-square, on the other hand, is order-blind, when more than one.d.f. is involved.

[35] Siegel, Sidney. Nonparametric Statistics. New York: McGraw-Hill Book Company, Inc., 1956, pp. 127-136.

Our approach to the K-S technique is conservative; we apply it only when the underlying distribution is monotonic, or deviates very slightly from monotonicity. Suppose that the proportions of those with AV training in five level of use categories arranged from "0," to "H," ran as follows: 35%, 50%, 50%, 65%, 80%. Here we apply the test. Had the order been different we would refrain from using it.

[36] By Gilbert M. Oster, p. 43 The American Statistician, October, 1964.

Since the body of findings developed in this study was presented in the preceding chapter, we will limit ourselves now to reporting only such results as may appear in conflict with those cited previously or such results as would lead to broader and more detailed comprehension of relationships between variables. The order of factors is the same as in Chapter III and the respective analytical sections are again number 1-14.

1 & 2. Size of District and Size of School

With the exception of teachers of Mathematics who provided results consistent with those reported earlier, we find that in the remaining study groups no systematic relationship existed between size of district or school, on the one hand, and level of use of the favorite medium on the other.[37] Mathematics instructors reported decreasing proportions of relatively high users (i.e., biweekly and up) as the size of the school increased from small to medium to large, viz. 22 per cent, 14 per cent, 11 per cent.[38]

3. Sex of Teacher

Of the nine study groups[39] eight showed that male teachers exceeded females in their level of use of the favorite medium; this general pattern was particularly marked among the two elementary groups. The Music teachers went counter to the trend: women were higher users than men. Table 4.2, below, shows the distribution of responses of the Music teachers and those in the intermediate elementary grades; it also illustrates the way in which the Kolmogorov-Smirnov test is applied to the data to measure differences for statistical significance.[40]

---

[37] This is, of course, not in contradiction with: "tne larger the school, the higher the proportion of audiovisual users" (among secondary teachers, except for Mathematics; p.14).

[38] The overall correlation between school size and level of use measured by $\text{rho}_g = -.2$, was significantly different from zero.

[39] There were almost no male teachers in grades K-3.

[40] For the sake of comparability Intermediate data were combined from five, Music data from four (original) level of use categories.

Table 4.2

HOW MALE AND FEMALE TEACHERS USED THE PREFERRED AV MEDIUM:
INTERMEDIATE VS. MUSIC TEACHERS
(In Percentages)

	Number	Level of Use			Total
		None	Low +	Weekly +	
Intermediate					
Male	328	11.0	43.6	45.4	100.0
Female	1238	23.0	39.4	37.6	100.0
Male-Female[a]		-12.0	4.2	7.8	
Music					
Male	197	19.3	23.3	57.4	100.0
Female	48	8.3	12.5	79.2	100.0
Male-Female[a]		11.0	10.8	-21.8	

[a] Significant at .05 level.

4. Educational Attainment of Respondent

The relationship between level of use of favorite AV medium and educational attainment of the responding teacher is difficult to describe, on the basis of our data. In several study groups the proportion of the holders of the Masters degree in the highest use category is larger than in the remainder of the group thus providing a hint of a positive correlation between use and education.[41] The English teachers produce the only example of a clear-cut statistically significant difference in level of use in favor of the Masters over the Bachelors. And - not unexpectedly[42] - the Mathematics instructors supply the illustration of a negative relation. Table 4.3 juxtaposes these very dissimilar patterns.

---

[41] This is the case among K-3, 7-9, Art, Science teachers, and, to a lesser extent, among grades 4-6.

Table 4.3

LEVEL OF USE OF FAVORITE MEDIUM AND EDUCATIONAL ATTAINMENT:
TEACHERS OF ENGLISH AND MATHEMATICS
(In Percentages)

	Number	Level of Use				Total
		None	Low	Biweekly	Weekly+	
		English				
M.A.	403	30.8	39.9	10.2	19.1	100.0
B.A.	819	40.9	39.3	7.3	12.5	100.0
M.A.-B.A.[a]		-10.1	.6	2.9	6.6	
		Mathematics				
M.A.	281	69.4	19.2	11.4		100.0
B.A.	469	59.5	23.4	17.1		100.0
M.A.-B.A.[b]		9.9	-4.2	-5.7		

[a] Significant at .05 level.

[b] Not significant at .05 level; Minimum difference for .05 level, D_{05} = 10.2.

---

[42] Cf. pp. 15-16.

Among the lowest grade teachers a positive correlation between educational attainment of respondent and level of AV use was observed when the educational continuum was expanded to three categories. Table 4.4 presents the pertinent data condensed from the detailed tabulation in appendix table B-1.

Table 4.4

LEVEL OF AV USE AND EDUCATIONAL ATTAINMENT:
TEACHERS OF LOWEST GRADES (K-3)
(In Percentages)

Education Degree	Number	Level of Use			Total
		O&L	B&W	H&VH	
M.A.	252	21.8	25.4	52.8	100.0
B.A.	1396	30.8	29.2	40.0	100.0
T.C.[a]	458	38.6	28.8	32.6	100.0

[a] Teaching Certificate; no college degree.

Although the correlation documented above is not strong[43] it is statistically highly significant given the numerical size of the study group involved.

5. Length of Teaching Experience

Level of use of favorite medium seems to be unrelated to teaching experience as long as it (the experience) does not exceed nineteen years of teaching. Among those who had spent twenty years, or more, in teaching, a slight decrease in level of use was noticed among the lowest and intermediate grades of elementary teachers, as well as among Mathematics and Language instructors. Table 4.5 compares those with a career of twenty years and over with their younger colleagues of the same subject or grade level.

---

[43] Less than .2 when measured by rho_g.

Table 4.5

TEACHING EXPERIENCE AND LEVEL OF
USE OF FAVORITE MEDIUM
(In Percentages)

Study Group	Experience: Years[a] 1-19	20+	Level of Use Categories
K-3	62.0	57.2	Weekly and up
4-6	55.4	47.2	Biweekly and up
Language	61.0	47.6	Biweekly and up
Mathematics	37.4	23.8	Low and up

[a] All row differences significant at .05 level.

No other systematic relationships were found to obtain between years of experience and level of use.

6. Training in Audiovisual Techniques

In the parallel section of the preceding chapter we reported that the proportion of users was higher among those trained in AV techniques than among the untrained, within all study groups except the highest grade elementary (7-9) and the Science teachers. We concluded that (but for these two groups) training was positively related to the probability of audiovisual use. The present analysis by level of use of favorite medium supplies additional evidence pertinent to this summary statement. And most of the evidence is corroborative.

Teachers trained in audiovisual techniques showed significantly higher levels of use than others in the lowest and intermediate grades, among Language, Mathematics, and Music teachers; a similar situation obtained among elementary teachers of grades 7-9, among instructors of Art and of Social Studies, but here differences between training and no training failed to reach conventional levels of statistical significance.[44]

Wherever numbers of respondents were sufficient a more detailed analysis by type of training was performed. Elementary teachers of grades K-3 and 4-6 show the highest pattern of use of favorite medium when they have been exposed to the combination of College and Inservice training courses. No differences in level of use were found to obtain between the college-trained and those who obtained their audiovisual training in other ways.

7. Familiarity with Equipment

Teachers who have operated a piece of audiovisual equipment[45] are more likely to report a higher level of use of the group's preferred medium whether the given item of equipment is "the favorite" or not. Fifty comparisons of use patterns of "operators" vs. "nonoperators"[46] produced the following results:

> 30 instances of significant positive association of operation and level of use;
>
> 14 instances of no difference between those who had operated and those who had not;

---

[44] Complete data in Table B-2.

[45] Slide-strip, film, opaque, overhead projector, or tape recorder.

[46] Five pieces of equipment, ten study groups. Data in Table B-3.

6 instances where the number of persons who had not operated the equipment was too small to make comparisons.

It would seem that these findings constitute even stronger evidence of the positive relation between familiarity with operation and AV use that what was cited in the absolute use/nonuse analysis.[47] A goodly proportion of those teachers who have operated the film projector found it difficult to handle. For instance, among the lowest grade, English and Language teachers, this proportion exceeded one-fourth but there was no systematic relationship between the self-report of difficulty encountered and level of use of the favorite medium (which in the case of these three study groups was not the film projector). Among intermediate grade and Social Studies teachers--whose favorite medium is the film projector--the percentage of those reporting difficulty in operation declined as the level of use increased: among 4-6 elementary teachers, 25.2 per cent (None) to 5.7 percent (High), and in the Social Studies group from 19.8 percent to 8.7 percent.

The tape recorder was a stumbling block for teachers in several disciplines: reported difficulty in operation and level of use of favorite medium were negatively related among teachers in the intermediate grades and instructors in Mathematics while in other study groups the two variables were not systematically related.

There is another way of looking at these data; for instance, by teachers' ratings of their skill in operating the film projector: one may consider "can teach," "find easy," "find hard" an ordered set of categories describing the variable "familiarity" and correlate familiarity with level of use of favorite medium. A relatively high positive correlation[48] was found to exist among 4-6 grade teachers while Science and Language teachers produced correlations which though significant were practically negligible.[49]

---

[47] e.g. on p. 18.

8. Audiovisual Information Prepared by the School District

The findings presented in the preceding chapter are paralleled by the results obtained when the three ordered categories of opinions toward information provided ("sufficient, incomplete, not provided") are pitted against level of use of favorite medium. For all three elementary groups, the Art and Science teachers we find a positive (and statistically significant) correlation between the two variables while within the remaining study groups no systematic relationships existed.

9. Teachers' Suggestions for Acquisition of Audiovisual Equipment

The higher the level of use of the favorite medium the higher the proportion of teachers who suggested acquisition or rental of AV equipment. This summary statement held for every study group; the magnitudes of increases over the use continuum may be gauged by the ranges presented in Table 4.6.

---

[48] $rho_g = .36$ for $N = 1567$.

[49] .22, .16 for $N_s = 735, 427$, respectively.

Table 4.6

LEVEL OF USE OF FAVORITE MEDIUM AND TEACHERS' SUGGESTIONS FOR ACQUISITION OF AV EQUIPMENT

Group	Lowest and Highest Category of Use	
	Lowest (None)	Highest (High)[a]
	Per Cent Reporting Suggestions	
K-3	52	67
4-6	54	75
7-9	54	71
Art	60	81
English	54	80
Language	51	78
Mathematics	49	71
Music	48	71
Science	63	80
Social Studies	58	74

[a] High and Very High for K-3, Language; Weekly + for 7-9, English; Biweekly + for Art, Mathematics.

Our level-of-use analysis agrees with the findings of the preceding chapter and adds the information that the proportion of suggesters increases steadily with level of use; any deviations from monotonicity were negligible.

10. Help Needed by Teachers to Use Media Effectively

Fewer than 10 per cent of all respondents indicated that they needed no help to use audiovisual aids effectively. Table A-15 clearly demonstrates that in each study group the absolute nonusers of AV media much more often hang out the "No help needed" sign. The question may be asked legitimately whether there is a systematic relationship between need for help and level of use, i.e., whether the proportion of those needing no help decreases as use rises, as the dichotomous data seem to suggest. The answer provided by our analysis is clearly negative,[50] except for teachers of Mathematics who report the expected progression:[51]

Level of Use	Per Cent Needing No Help
None	18.7
Low	7.3
Biweekly +	5.4

Most frequently those who need help specify uptodate information on new materials as most urgent. Among elementary teachers, as well as among English and Mathematics instructors, this need was significantly related with level of use of their favorite medium. In the remaining study groups no systematic correlation of this nature was observed nor was the need for technical assistance related in any orderly way with level of use.

---

[50] Data in Table B-4.

[51] Kolmogorov-Smirnov test between help/no help arranged by level of use significant at .05 level.

Since Table 3.9[52] led to the suggestion that the GNQ ("Get help/Need Help Quotient") may be positively related to level of use of the preferred medium, the pertinent analysis was performed. Only one study group, the Music teachers, produced the predicted progression: 37, 50, 55, 61, for four rising levels of use of their medium. The other groups showed insignificant trends or random variations.

11. Problems Encountered in Using Audiovisual Aids

When responses to the list of twelve difficulties were analyzed on the basis of level of use of the group's preferred medium, a picture emerged which reminded us of that developed by the dichotomous analysis. But, in several ways, the present picture is sharper.

The average number of difficulties checked by individual respondents descended, in every study group, as the level of use rose; see table 4.7, below.

Table 4.7

PROBLEMS: AVERAGE NUMBER ENCOUNTERED

Group	Level of Use								
	O	L		B		M		H	VH
K-3	3.6	3.2		2.8		3.0		2.8	2.6
4-6	3.6	3.2		3.0		2.7		2.5	
7-9	4.7		3.5				3.3		
Art	3.9	4.0			2.4				
English	4.3	4.4		4.2			4.1		
Language	4.7		4.9			3.7		3.3	3.3
Mathematics	4.6	4.4			4.0				
Music	4.3		4.0			3.5		3.1	
Science	4.2	3.8		3.2		2.9		2.5	
Social Studies	4.7	4.1		3.3		3.4		2.8	

---

[52] P.30. In all six comparisons of the secondary subject groups, the GNQ's of the Users were larger than those of the Nonusers.

It will be noticed that the decrease in averages from left to right is slight among English and Mathematics teachers. These two groups also produce uniformly low percentages of respondents reporting no difficulties with AV aids--percentages which seem unaffected by level of use. The same pattern was observed among the highest grade teachers and among Art and Music instructors.[53] The remaining five study groups, on the other hand, provided evidence that the proportions of persons registering no difficulties increase sharply with level of use. The ranges shown here summarize the information.

Group	Lowest and Highest Level of Use Per Cent reporting no difficulty	
K-3	4.9	11.0
4-6	5.3	10.3
Language	2.4	13.4
Science	1.6	11.0
Social Studies	3.6	8.2

As in the preceding chapter, we discovered that the first item in the list ("Not enough time to preview or prepare materials adequately") was the only one to produce positive correlations: In the English and Mathematics groups the relative number of those reporting inadequate time (to preview or prepare materials) was larger the higher the level of use of their favorite media. In the remaining study groups, the proportions showed either a slightly positive tendency (with ascending use) or remained uniform throughout.

Difficulties and problems enumerated in items 2-11 of our battery were unrelated or negatively correlated with level of use, i.e., the higher the level-of-use category the lower the respective proportion of those checking "yes" in the given group. Rearranging these items into three problem areas--to parallel the order presented in Table 3.11 (p. 34)--we obtain the results shown in Table 4.8, below.

---

[53] The Art and Music groups showed zeroes right across the table.

Table 4.8

PROBLEMS: RELATIONSHIPS WITH LEVEL OF USE

Item No.	Problem Area	Difficulty negatively correlated with level of use in study groups:									
		K-3	4-6	7-9	A.	E.	L.	M.	M.u.	S.	SS.
a.	Materials										
2	AV materials difficult to integrate into lesson plans	(-)		-		(-)	-	-	-		-
8	Few good AV materials in subject area		-	-			(-)	-		-	(-)
10	Students see AV as "entertainment" and do not study it	-					(-)			-	-
12	Materials or equipment frequently not available				-					-	-
b.	Timing and scheduling										
3	Not enough information available about materials		-			-	(-)			-	
9	Too much "red tape" in ordering and scheduling		-							-	(-)
5	Not enough time for basic classroom teaching	-	-	-			(-)	-			-
c.	Technical problems										
7	Much of the equipment is in poor repair or obsolete		-								
4	Classroom is not set up properly for AV aids	(-)								(-)	-
6	Much of the equipment is too difficult to operate	(-)	-								(-)
11	AV aids are too expensive for the results achieved		-	-			-			-	-

Legend (see text). - statistically significant and "linear" (monotonic). (-) statistically significant but not monotonic.

Considering the fact that the more intensive users of the favorite medium experience fewer difficulties (as per Table 4.7), it follows logically that with respect to some difficulties proportions should decline as one progresses toward higher levels of use. The function of Table 4.8 then becomes to point up where the descending line of proportions was steep and devoid of major reversals,[54] where the relationship between use and the given difficulty was sufficiently steep to be statistically significant but not "straight line" enough to qualify as monotonic,[55] and where there was no indication of a systematic relationship.[56]

12. Classroom Use of Self-Prepared or Personal AV Materials

As far as these two factors are concerned, the analysis by level of use adds little of interest to our report in the corresponding section of the previous chapter. Art teachers, regardless of level of use, registered uniformly high percentages of persons who prepared or brought in AV aids. For all remaining study groups the statement "the higher the level of use the higher the proportion" describes the relationship with either factor. Deviations from the perfect pattern were negligible.

13. Audiovisual Materials Considered an Integral Part of a Course

Here, again, we find an almost perfect correlational pattern--the higher the use the higher the relative number of teachers who consider AV techniques an integral part of the course. Table 4.9 shows the ranges for the ten study groups.

---

[54] symbolized -
[55] shown as (-); usually with some upturn in the highest category.
[56] Blank spaces in the table.

Table 4.9

PROPORTIONS OF TEACHERS WHO CONSIDERED AV MATERIALS
AN INTEGRAL PART OF INSTRUCTION:
LOWEST VS. HIGHEST USE

Group	Lowest and Highest Categories of Use Per Cent Saying "Integral"	
	Lowest	Highest
K-3	26	49
4-6	36	72
7-9	37	57
Art	44	60
English	28	47
Language	17	67
Mathematics	23	38
Music	29	59
Science	48	62
Social Studies	30	56

14. Seven Functions of AV Techniques: Teacher Preferences

Here the analyst's assignment was to establish how teachers' preferences of potential classroom functions of AV media varied by level of use. For this purpose, the proportions of respondents in a given group and use category[57] checking "use very often" in response to the seven functions listed (in Question 37 of the Teacher Questionnaire) were translated into rankings of the functions. The ranks given the functions by the several user categories within each group were then juxtaposed. It was noticed that in four study groups, in elementary

---

[57] e,g,, Music teachers, High.

2

K-3 and 4-6 grades, Art and Music, the ranks of relative preference did not vary by use. The variations in the remaining groups will be described later.

We then proceeded to compute the mean rank for each function and group (across the use categories) to represent the study group's overall preferences. These mean ranks are shown in Table B-5, for all ten study groups. The grand means (i.e., mean ranks for all groups taken together) are presented in Table 4.10 below.

Table 4-10

RELATIVE PREFERENCES FOR VARIOUS
FUNCTIONS OF AV MEDIA

Function	Rank-order of preference [a]
Motivate students to learn	3.4
Enrich material given in text or class	1.2
Review material given in text or class	5.5
Present new material (direct teaching)	4.3
Illustrate a principle	4.9
Provide general background for a unit	3.7
For cultural activity	5.0

[a] Mean of ranks assigned function by all study groups and use categories. The lower the number, the higher the preference.

Relative preferences (expressed in rank numbers) varied little from use category to use category, within the same group; in other words, the mean ranks appearing in the appendix table (B-5) are fairly typical for a given group almost without regard to level of use. In some instances, however, we observed that a given function climbed up in relative preference, or descended, as the eye traveled up the ladder of the level of use of the group. These systematic progressions related to use are recorded in Table 4.11.

Table 4.11

HOW RELATIVE PREFERENCES FOR VARIOUS FUNCTIONS OF AV MEDIA WERE RELATED TO LEVEL OF USE

Function	Study Group					
	7-9	Eng.	Lang.	Math.	Sc.	SS.
Motivate	+		+		+	
Enrich				+		
Review			+		-	
Direct teaching						+
Illustrate				-		
Provide background			-	+		
Cultural activity		+	-			

The language teachers, as a group, showed most systematic variations in their preferences while the four groups mentioned above did not make Table 4.11, since their use categories agreed almost perfectly in their relative preferences of classroom application of AV materials.

CHAPTER V

TEACHERS' PLANS FOR INCREASED USE OF AUDIOVISUAL MEDIA

The findings cited in the preceding two chapters were based on teachers' responses to questions dealing with the "present" state of affairs, as of the Fall Semester of 1961-1962. An effort was made (in Question 38 of the Questionnaire) to provide some indication of future changes in the AV use patterns, at least for the very near future of the Spring term 1962. That the intentions and plans of our respondents with respect to the next school term cannot be extrapolated for longer periods of time, is obvious.

On the average, one respondent in six stated that he (or she) would increase the use of a given medium in the subsequent semester. This overall figure includes both those teachers who planned to try an AV aid previously not in their repertory and those who would emphasize the use of a medium now used. As might be expected, the preferences for increased use, as defined here, are not assigned evenly to all media by all study groups. Teaching machines are least favored while the groups' favorite medium is close to, or at the top of, the list of planned increases. As an example, the proportions of English teachers who intended to increase use of media varied from 6 per cent (teaching machines) to 30 per cent (records--their favorite medium). Similar ranges were observed for the other study groups. Table 5.1 summarizes the respective findings.

TABLE 5.1

PLANS FOR INCREASED USE OF FAVORITE AND OTHER AV MEDIA
(In Percentages)

Grade or Subject	Favorite Medium		Ten Listed Media	
			Mean	Range
K-3	Records	15	18	8 - 29
4-6	Films	19	18	10 - 24
7-9	Films	22	19	8 - 28
Art	Films	27	19	3 - 31
English	Records	30	17	6 - 30
Language	Tapes	35	17	7 - 35
	Records	23	-	-
Math	Films	18	12	4 - 25
	Filmstrips	25	-	-
Music	Records	21	16	3 - 27
Science	Films	22	17	8 - 23
Social Studies	Films	22	18	5 - 25

It will be noticed that the group of teachers of Mathematics shows a lower mean number of "increasers" than the other groups, but for that they have the distinction of being more often than others in favor of introducing teaching machines (12%) and are second only to the Science teachers in their planned increased use of the overhead projector (17%).

The question whether users differed from nonusers of AV aids in their projections for increased use of specific media in the subsequent semester must be answered in stages:

1. Among intermediate elementary (4-6) and Language teachers, users and nonusers expressed similar views regarding increased use of all media listed.

2. Two media, radio and 2x2 slides, garnered almost identical proportions of "increasers" among users and nonusers of all nine study groups.

3. Of the remaining seven study groups, four produced only positive correlations of present and increased use, i.e., proportions of "increasers" were significantly higher among present AV users than among nonusers. The four groups: Elementary 7-9, Fine Arts, Mathematics, Social Studies.

4. Significant differences (at .05 level) between projections of increased use of users and nonusers are recorded in Table 5.2 below.

TABLE 5.2

PLANS FOR INCREASED USE OF AV MEDIA: USERS VS. NONUSERS

Medium	Group						
	K-3	7-9	English	Fine Arts	Mathematics	Science	Social Studies
Filmstrips	-					-	
Films					+*	-*	
Records	-*		-*		+		+
Tapes	+	+			+		+
TV					+		
Overhead				+	+	+	+
Opaque			+				+
Teaching machine			+				

Legend: + = Users significantly higher, - = Users significantly lower, * = Group's favorite medium.

The analysis by level of use of the favorite medium yielded the results presented in Table 5.3

TABLE 5.3

HOW PLANS FOR INCREASED USE OF CERTAIN AV AIDS WERE RELATED TO LEVEL OF USE OF FAVORITE MEDIUM

Medium	Group							
	K-3	4-6	English	Language	Mathematics	Music	Science	Social Studies
Filmstrips	-					+		
Films		(-)*			+		-*	(-)*
Records	(-)*		-*					
Tapes	(+)							
Opaque				(+)				

It is immediately obvious that this table is considerably shorter, since only one-half of the media originally listed had to be represented. Five media[58] could be omitted, since it was found that proportions of those planning their increased use in the next term were unrelated to the level of use of the favorite medium of the group. Our findings here focus somewhat more sharply on the relation between present level and planned increase in the use of the favorite medium. Among the low-using Mathematics teachers this relationship was positive while in five study groups the responses were correlated negatively.

---

[58] 2x2 slides, television, overhead projector, teaching machines.

Had our data dealt with projections of intentions of increased use over a longer period of time we would have searched for insightful interpretations of the negative correlations mentioned above. Were they the result of a "ceiling effect" among the high users of the medium? Would low users or nonusers of the favorite medium be "naturally" attracted to the medium preferred by their colleagues? Or, were both kinds of factors contributing to the result?

In view of the fact that the teachers were merely asked to reveal their plans for the second term of the same academic year we believe that interpretations conducive to long-range forecasts of teachers' plans for audiovisual techniques must await results of further research.

APPENDIX TABLES

APPENDIX TABLES

Tables in series A show the relation between absolute use/nonuse of AV aids and those variables with respect to which the Teacher Questionnaire provided information. The order is generally that of the Questionnaire. The numbers of cases on which the analyses of this series are based are presented in Table A-1.

Tables B-1 through B-5 constitute a separate series of tables where level of use of favorite medium is related to certain variables.

Abbreviations and symbols used:

Q. (Followed by number; in upper left corner) refers to the Question number in the Teacher Questionnaire.

[] Number of cases too small to express in percentages.

+, ++ Difference in favor of users (e.g. users higher than nonusers) significant at .05, .01 level respectively; relationship between variable and use positive and significantly different from zero at .05, .01 levels.

-, -- Ditto--but negative

DNA Does not apply

TABLE A-1

USE OF AUDIOVISUAL MEDIA BY ELEMENTARY GRADE AND SECONDARY SUBJECT

Grade or Subject	Number	Percent of Teachers Who: Used AV Media	Percent of Teachers Who: Did Not Use AV Media
ELEMENTARY			
Total	3990	94.4	5.6
K - 3	2114	94.3	5.7
4 - 6	1567	95.9	4.1
7 - 9	309	87.7	12.3
SECONDARY			
Total	4432	81.7	18.3
English	1223	84.5	15.5
Fine Arts	391	90.5	9.5
Language	427	88.8	11.2
Mathematics	762	45.1	54.9
Science	735	94.8	5.2
Social Studies	894	91.2	8.8

TABLE A-2

COMPARISON OF USE OF AUDIOVISUAL MEDIA FOR ELEMENTARY GRADES AND SECONDARY SUBJECTS BY SIZE OF SCHOOL DISTRICT

Grade or Subject	Percent of Teachers in Each District Size Category Who Used AV Media				
	2[a]	3	4	5	6,7,8
ELEMENTARY					
K - 3	93.9	94.9	89.0	88.4	90.7
4 - 6	98.4	96.0	95.1	96.9	92.7
7 - 9	93.1	91.4	88.0	85.1	84.2
SECONDARY					
English	84.3	86.6	86.2	82.7	77.8
Fine Arts	90.8	91.8	94.4	83.2	95.0
Language	88.0	90.7	86.7	90.6	87.5
Mathematics	46.0	46.4	41.6	42.7	59.0
Science	92.6	94.7	94.7	97.6	93.2
Social Studies	90.1	92.5	91.1	89.9	94.1

[a] These number designations represent the following enrollment size categories:

2	12,000 - 24,999 pupils
3	6,000 - 11,999 pupils
4	3,000 - 5,999 pupils
5	1,200 - 2,999 pupils
6,7,8	150 - 1,199 pupils

TABLE A-3

COMPARISON OF USE OF AUDIOVISUAL MEDIA FOR ELEMENTARY GRADES AND SECONDARY SUBJECTS BY SIZE OF SCHOOL

Grade or Subject	Percent of Teachers in Each Type of School Who Used AV Media		
	Small Schools[a]	Medium Schools[b]	Large Schools[c]
ELEMENTARY			
K - 3	94.1	94.8	92.9
4 - 6	97.4	95.0	97.5
7 - 9	65.9[d]	92.1	90.3
SECONDARY			
English	80.6	81.9	88.7
Fine Arts	87.3	89.3	94.0
Language	83.8	84.9	92.3
Mathematics	60.6	42.3	37.8
Science	94.2	94.6	9~~6~~4.2
Social Studies	89.7	90.7	92.3

[a] 1 - 10 teachers for elementary schools; 1 - 30 teachers for secondary schools.

[b] 11 - 25 teachers for elementary schools; 31 - 50 teachers for secondary schools.

[c] 26 - 50 teachers for elementary schools; 51 - 150 teachers for secondary schools.

[d] Percentage based on much smaller number (N=44) than other entries for elementary teachers.

Q. 11

TABLE A-4

USE OF AUDIOVISUAL MEDIA FOR ELEMENTARY GRADES AND SECONDARY SUBJECTS BY SEX OF TEACHER

Grade or Subject	Males Number	Males Users %	Females Number	Females Users %	Difference in % users (M-F)
ELEMENTARY					
Total	498	95.8	3490	94.2	1.6
K - 3	12	[ ]	2101	94.4	-
4 - 6	328	97.9	1238	95.3	2.6+
7 - 9	158	92.4	151	82.2	10.2+
SECONDARY					
Total	2488	83.1	1943	80.0	3.1
English	376	85.4	846	84.0	1.4
Fine Arts	271	91.9	120	87.5	4.4
Language	140	89.3	287	88.5	0.8
Mathematics	482	45.4	280	45.0	0.4
Science	583	95.7	152	91.4	4.3+
Social Studies	636	93.6	258	85.3	8.3++

Q. 8

TABLE A-5

COMPARISON OF USE OF AUDIOVISUAL MEDIA FOR ELEMENTARY GRADES AND SECONDARY SUBJECTS BY HIGHEST DEGREE OBTAINED

Grade or Subject	Per Cent of Teachers in Each Degree Status Who Used AV Media		
	M.A., M.S., M.Ed.[a]	B.A., B.S., B.Ed.	No College Degree[b]
K - 3	98.0	95.0	90.4
4 - 6	98.0	96.3	91.6
7 - 9	95.7	88.1	76.2
English	88.4	82.7	[ ]
Fine Arts	96.2	85.8	[ ]
Language	92.6	85.8	[ ]
Mathematics	41.6	48.0	[ ]
Science	95.1	94.5	[ ]
Social Studies	92.0	90.5	[ ]

---

[a] The teachers who hold Ph.D.'s (or Ed.D.'s) were omitted from this analysis since the number was too small (a total of 33 over all groups).

[b] This group includes those teachers who hold teaching certificates or Associate's degrees.

Q. 9

TABLE A-6

USE OF AUDIOVISUAL MEDIA FOR SECONDARY SUBJECTS BY DEGREE SPECIALIZATION

Grade or Subject	Number with Degree in Subject	Percent Who Used AV[a]	Number with Degree in Education	Per Cent Who Used AV[a]
Total	2446	33.4	1024	81.3
English	709	85.8	214	84.1
Fine Arts	221	90.5	128	92.2
Language	264	89.8	49	91.8
Mathematics	331	43.5	201	41.3
Science	386	95.3	205	94.1
Social Studies	535	90.3	227	93.8

[a] Differences (Subject-Education) not significant.

Q. 7

TABLE A-7

COMPARISON OF USE OF AUDIOVISUAL MEDIA FOR ELEMENTARY GRADES AND SECONDARY SUBJECTS BY YEARS OF TEACHING EXPERIENCE

Grade or Subject	Percent of Teachers in Each Experience Category Who Used AV Media			
	1 - 3 Years	4 - 9 Years	10 - 19 Years	20+ Years
K - 3	92.7	95.7	95.4	93.0
4 - 6	95.7	96.7	95.9	95.3
7 - 9	88.3	89.8	83.8	88.1
English	82.0	88.9	83.0	83.8
Fine Arts	84.4	93.0	94.8	88.0
Language	94.1	88.7	93.1	83.3
Mathematics	51.8	44.7	49.4	35.2
Science	95.6	96.4	91.0	96.8
Social Studies	93.6	91.6	92.2	85.5

Q. 16

TABLE A-8

USE OF AUDIOVISUAL MEDIA FOR ELEMENTARY GRADES AND SECONDARY SUBJECTS BY AUDIOVISUAL TRAINING

Grade or Subject	Number with Training	Percent Who Used AV	Number without Training	Percent Who Used AV	Difference (Trained-Untrained)
		ELEMENTARY			
Total	2615	95.7	1330	91.9	3.8++
K - 3	1390	95.5	726	92.1	3.4++
4 - 6	1037	97.0	496	93.1	3.9++
7 - 8	188	89.9	108	84.3	5.6
		SECONDARY			
Total	2383	84.9	1968	77.7	7.2++
English	600	86.8	590	82.2	4.6+
Fine Arts	210	93.3	181	87.3	6.0+
Language	223	92.8	204	84.8	8.0++
Mathematics	388	50.5	374	39.6	10.9++
Science	423	94.8	286	94.8	0.0
Social Studies	539	92.9	333	86.0	6.9+

Q. 17

TABLE A-9

COMPARISON OF USE OF AUDIOVISUAL MEDIA FOR ELEMENTARY GRADES AND SECONDARY SUBJECTS BY TYPE OF AUDIOVISUAL TRAINING

Grade or Subject	Percent of Teachers in Each Training Category Who Used AV Media		
	College	Inservice	College & Inservice
K - 3	95.0	95.0	99.0
4 - 6	96.7	96.7	98.0
7 - 9	92.2	84.6	93.9
English	85.9	89.8	91.7
Fine Arts	91.2	95.5	[ ]
Language	95.2	83.3	[ ]
Mathematics	47.0	61.2	60.6
Science	94.6	95.4	92.5
Social Studies	91.6	91.8	98.4

Q. 29

TABLE A-10

FAMILIARITY WITH OPERATION OF AUDIOVISUAL EQUIPMENT WITHIN ELEMENTARY GRADE AND SECONDARY SUBJECT BY USE OF AUDIOVISUAL MEDIA

Grade or Subject	Number	Percent of Teachers Who Have Operated Equipment[a]				
		Slide-Filmstrip Projector	Film Projector	Tape Recorder	Overhead Projector	Opaque Projector
K - 3						
Users	1994	89.5	81.1	58.7	18.3	52.4
Nonusers	120	64.2	58.3	38.4	5.8	31.7
4 - 6						
Users	1502	92.7	85.4	70.2	27.7	66.8
Nonusers	65	64.7	53.9	38.5	15.4	33.9
7 - 9						
Users	271	93.0	85.2	76.8	37.6	68.3
Nonusers	38	68.4	52.6	50.0	23.8	42.1
English						
Users	1033	78.2	68.5	75.8	28.1	53.4
Nonusers	190	61.1	50.5	52.7	17.4	36.3
Fine Arts						
Users	354	81.9	76.8	82.8	34.5	56.5
Nonusers	37	54.1	54.1	62.2	16.2	37.8
Language						
Users	379	74.7	66.0	88.4	22.4	37.5
Nonusers	48	29.1	29.1	31.2	10.4	16.7
Mathematics						
Users	344	84.3	82.6	58.1	49.1	56.7
Nonusers	418	77.1	69.5	49.1	31.1	41.4
Science						
Users	697	95.1	95.3	68.6	61.1	61.7
Nonusers	38	81.6	84.2	44.8	39.4	52.6
Social Studies						
Users	815	90.2	88.1	75.0	42.7	62.7
Nonusers	79	75.9	73.4	45.5	26.5	41.7

---

[a] Included in this category are those teachers who replied that they "find hard to operate," "find easy to operate," or "can teach someone else."; all differences between proportions of users and nonusers significant except for the cell Science/Opaque Projector.

Q. 29

TABLE A-11

DIFFICULTY IN OPERATING AUDIOVISUAL EQUIPMENT WITHIN ELEMENTARY GRADE AND SECONDARY SUBJECT BY USE OF AUDIOVISUAL MEDIA

Grade or Subject[a]	Number[b]	Percent of Teachers Who Rated Equipment Difficult to Operate				
		Slide-Filmstrip Projector	Film Projector	Tape Recorder	Overhead Projector	Opaque Projector
K - 3						
Users	1785	3.0	24.9	20.5	17.0	8.0--
Nonusers	77	5.2	25.7	23.9	[ ]	15.8
4 - 6						
Users	1392	2.0	17.7	14.5	6.5	4.3
Nonusers	42	7.1	17.1	16.0	[ ]	0.0
English						
Users	808	5.0-	26.3	11.0	14.5	9.2
Nonusers	116	10.3	28.1	10.0	18.2	10.1
Mathematics						
Users	290	1.7	12.3	6.5	3.0	4.6
Nonusers	297	3.4	12.8	9.8	3.8	4.0
Science						
Users	663	0.8	6.2	5.0	1.9	1.2
Nonusers	31	3.2	6.2	[ ]	[ ]	[ ]
Social Studies						
Users	735	1.6	11.6	8.8	4.6	4.3
Nonusers	60	3.3	15.5	16.7	9.5	9.1

[a] Grades 7 - 9, Fine Arts, and Language teachers have been omitted, since the numbers in the nonuser category are too small for a meaningful percentage.

[b] This table is based only on those teachers who rated the equipment. Excluded from the computations are those who said they were not familiar with the equipment and those who did not answer the question.

Q. 13 & 15

TABLE A-12

COMPARISON OF USE OF AUDIOVISUAL MEDIA FOR ELEMENTARY GRADES AND SECONDARY SUBJECTS BY REPORTED SUFFICIENCY OF AV INFORMATION PROVIDED BY SCHOOL DISTRICTS

Grade or Subject	Percent of Teachers in Each Opinion Category Who Used AV Media		
	Sufficient	Incomplete	Not Provided
K - 3	95.6	94.7	85.1
4 - 6	96.7	95.8	91.5
7 - 9	92.0	92.1	73.2
English	85.9	88.4	75.4
Fine Arts	94.0	92.2	83.6
Language	88.6	92.2	84.8
Mathematics	43.7	58.3	36.4
Science	95.9	94.8	92.1
Social Studies	91.4	94.2	86.5

Q. 13 & 15

TABLE A-13

REPORTED SUFFICIENCY OF AV INFORMATION PROVIDED BY SCHOOL DISTRICTS WITHIN ELEMENTARY GRADE AND SECONDARY SUBJECT BY USE OF AUDIOVISUAL MEDIA

Grade or Subject	Number	Percent of Teachers Who Reported That Information Was		
		Sufficient	Incomplete	Not Provided
K - 3				
Users	1994	71.4++	18.9	9.7--
Nonusers	120	54.2	17.5	28.3
4 - 6				
Users	1502	65.1+	22.8	12.1--
Nonusers	65	50.8	23.1	26.1
7 - 9				
Users	271	55.0+	25.8	19.2--
Nonusers	38	34.2	15.8	50.0
English				
Users	1033	50.2	31.1++	18.7--
Nonusers	190	44.7	22.1	33.2
Fine Arts				
Users	354	44.1+	29.9	26.0--
Nonusers	37	27.0	24.3	48.7
Language				
Users	379	51.2	28.2	20.6
Nonusers	48	52.1	18.7	29.2
Mathematics				
Users	344	52.0	28.5++	19.5--
Nonusers	418	55.3	16.7	28.0
Science				
Users	697	56.5	23.4	20.1
Nonusers	38	44.7	23.7	31.6
Social Studies				
Users	815	50.6	29.8+	19.6-
Nonusers	79	49.4	19.0	31.6

Q. 18

TABLE A-14

EXPRESSED OPPORTUNITY TO SUGGEST ACQUISITION OF AUDIOVISUAL MEDIA WITHIN ELEMENTARY GRADE AND SECONDARY SUBJECT BY USE OF AUDIOVISUAL MEDIA

Grade or Subject	Number	Percent of Teachers Who Reported		
		Used Opportunity to Suggest	Had Opportunity But Did Not Use	No Opportunity
K - 3				
Users	1994	63.6++	21.6-	14.8--
Nonusers	120	36.7	30.0	33.3
4 - 6				
Users	1502	68.4++	18.3	13.3--
Nonusers	65	40.0	27.7	32.3
7 - 9				
Users	271	67.9++	20.3-	11.8--
Nonusers	38	36.8	34.2	29.0
English				
Users	1033	67.2++	22.6--	10.2--
Nonusers	190	38.4	42.2	19.4
Fine Arts				
Users	354	70.3++	17.8-	11.9--
Nonusers	37	35.2	32.4	32.4
Language				
Users	379	72.5++	19.8	7.7--
Nonusers	48	41.7	31.2	27.1
Mathematics				
Users	344	66.0++	23.5--	10.5
Nonusers	418	45.7	40.9	13.4
Science				
Users	697	71.6++	17.4	11.0--
Nonusers	38	47.4	26.3	26.3
Social Studies				
Users	815	70.9++	19.5--	9.6-
Nonusers	79	46.9	35.4	17.7

Q. 21

TABLE A-15

MOST IMPORTANT HELP NEEDED TO USE MEDIA EFFECTIVELY WITHIN ELEMENTARY GRADE AND SECONDARY SUBJECT BY USE OF AUDIOVISUAL MEDIA

Grade or Subject	Number	Percent of Teachers Who Needed				
		Knowledge of New Materials	Suggestions of Appropriate AV Materials	Technical Help with Equipment	Other Help	No Help
K - 3						
Users	1994	24.4	20.1	22.4-	25.9	7.2-
Nonusers	120	16.7	14.2	32.5	23.3	13.3
4 - 6						
Users	1502	24.0	18.8	20.4	28.7	8.1--
Nonusers	65	18.5	16.9	21.5	24.6	18.5
7 - 9						
Users	271	25.1	20.3	13.7	31.7	9.2-
Nonusers	38	13.2	26.4	13.2	23.6	23.6
English						
Users	1033	22.4++	22.4	20.0	28.2	7.0
Nonusers	190	10.5	27.4	23.7	25.2	13.2
Fine Arts						
Users	354	26.3	19.8	15.0	29.6	9.3
Nonusers	37	13.5	24.3	13.5	29.8	18.9
Language						
Users	379	17.4	20.3	19.5	33.0	9.8
Nonusers	48	14.6	16.7	27.1	29.1	12.5
Mathematics						
Users	344	26.2++	22.7--	11.3	30.8	9.0--
Nonusers	418	14.6	33.2	9.6	23.9	18.7
Science						
Users	697	30.5	18.7	7.5	34.0	9.3--
Nonusers	38	26.3	18.4	10.5	21.1	23.7
Social Studies						
Users	815	28.3+	17.5	10.9	34.8	8.5-
Nonusers	79	16.5	27.8	12.7	26.5	16.5

Q. 36

TABLE A-16

MATERIALS PROBLEMS IN THE USE OF AUDIOVISUAL MEDIA WITHIN ELEMENTARY GRADE AND SECONDARY SUBJECT BY USE OF AUDIOVISUAL MEDIA

Grade or Subject	Number	Percent of Teachers Who Reported Problem			
		Difficult to Integrate Materials	Few Good Materials	Students See As Entertainment	Materials Not Available
K - 3					
Users	1994	14.8--	21.8	15.0--	42.7
Nonusers	120	27.5	27.5	30.8	50.0
4 - 6					
Users	1502	13.0	15.2--	21.5	44.5
Nonusers	65	18.4	23.1	27.7	43.1
7 - 9					
Users	271	15.5--	31.0-	31.7-	48.0
Nonusers	38	50.0	52.4	52.6	42.1
English					
Users	1033	24.0--	40.2	32.7	48.8
Nonusers	190	38.4	43.1	37.9	47.9
Fine Arts					
Users	354	18.9--	35.6	20.1	44.1
Nonusers	37	40.5	48.7	21.6	54.1
Language					
Users	379	24.8-	30.3	35.4	40.4
Nonusers	48	43.8	41.7	37.5	41.7
Mathematics					
Users	344	43.0--	62.5--	34.6	42.4
Nonusers	418	59.8	72.7	39.0	39.0
Science					
Users	697	19.4-	16.2--	27.7	47.8
Nonusers	38	34.2	34.2	42.1	60.5
Social Studies					
Users	815	20.4-	20.1	36.2-	55.3
Nonusers	79	30.4	26.6	50.7	58.3

Q. 36

TABLE A-17

LOGISTIC PROBLEMS IN THE USE OF AUDIOVISUAL MEDIA WITHIN ELEMENTARY GRADE AND SECONDARY SUBJECT BY USE OF AUDIOVISUAL MEDIA

Grade or Subject	Number	Percent of Teachers Who Reported Problem			
		Too Little Preview Time	Not Enough Information Available	Too Much Red Tape	Not Enough Basic Teaching Time
K - 3					
Users	1994	59.7	26.2-	23.2	23.6--
Nonusers	120	60.0	35.0	28.3	42.5
4 - 6					
Users	1502	64.0	25.1--	21.5	24.4
Nonusers	65	66.1	40.0	27.7	33.8
7 - 9					
Users	271	63.5	31.7	31.2	29.5
Nonusers	38	63.2	39.5	31.6	44.7
English					
Users	1033	69.5++	34.8	41.5	34.1-
Nonusers	190	52.6	41.8	41.6	42.1
Fine Arts					
Users	354	55.9	26.3	32.5	23.7-
Nonusers	37	62.2	27.0	48.7	40.5
Language					
Users	379	71.0	25.1-	36.1	36.9--
Nonusers	48	60.5	39.6	29.2	66.7
Mathematics					
Users	344	65.1++	32.3	28.5	31.7--
Nonusers	418	54.1	37.6	31.1	44.0
Science					
Users	697	66.0	22.1	31.6--	23.4
Nonusers	38	63.2	31.6	63.2	31.6
Social Studies					
Users	815	69.1+	31.2	36.4--	26.4-
Nonusers	79	54.5	38.0	53.2	39.2

Q. 36

TABLE A-13

PHYSICAL, EQUIPMENT, AND MONETARY PROBLEMS IN THE USE OF AUDIOVISUAL MEDIA WITHIN ELEMENTARY GRADE AND SECONDARY SUBJECT BY USE OF AUDIOVISUAL MEDIA

Grade or Subject	Number	Percent of Teachers Who Reported Problem			
		Equipment in Poor Repair or Obsolete	Classroom Set-Up Wrong	Equipment Difficult to Operate	AV is too Expensive
K - 3					
Users	1994	7.2--	41.5-	10.9--	8.3
Nonusers	120	15.0	51.7	27.5	13.3
4 - 6					
Users	1502	9.5-	43.7	8.0-	7.9
Nonusers	65	23.1	53.8	16.9	13.8
7 - 9					
Users	271	17.3	53.1	9.2	10.7-
Nonusers	38	15.8	63.2	15.8	23.7
English					
Users	1033	17.7	51.7	13.2	18.4-
Nonusers	190	16.3	50.0	15.8	25.8
Fine Arts	354	14.7	52.8	6.2	9.0-
Nonusers	37	21.6	62.2	16.2	24.3
Language					
Users	379	9.5	44.9	15.3	22.4
Nonusers	48	12.5	52.1	22.9	33.3
Mathematics					
Users	344	10.2	46.5	4.7	24.1
Nonusers	418	6.7	49.5	6.7	28.0
Science					
Users	697	11.5	37.7	2.7-	16.5
Nonusers	38	13.2	52.6	13.2	23.7
Social Studies					
Users	815	16.8	49.7	5.8-	12.9--
Nonusers	79	12.7	53.2	16.4	26.6

Q. 25 & 27

TABLE A-19

USE OF PERSONAL OR SELF-PREPARED AUDIOVISUAL MATERIALS WITHIN ELEMENTARY GRADE AND SECONDARY SUBJECT BY USE OF AUDIOVISUAL MEDIA

Grade or Subject	Number	Percent of Teachers Who	
		Used Personal Materials[a]	Prepared Own Materials[a]
K - 3			
Users	1994	70.1++	28.3++
Nonusers	120	41.7	13.3
4 - 6			
Users	1502	50.6++	22.8++
Nonusers	65	15.0	7.5
7 - 9			
Users	271	62.0++	35.1++
Nonusers	38	34.2	7.9
English			
Users	1033	60.6++	28.5++
Nonusers	190	26.8	11.1
Fine Arts			
Users	354	86.2++	36.7
Nonusers	37	43.2	37.8
Language			
Users	379	77.3++	57.8++
Nonusers	48	22.9	12.5
Mathematics			
Users	344	29.1++	27.3++
Nonusers	418	15.3	11.5
Science			
Users	697	44.5+	41.8
Nonusers	38	26.3	26.3
Social Studies			
Users	815	53.0++	25.6++
Nonusers	79	32.9	11.4

[a] Nonusers of the ten audiovisual aids surveyed brought in or prepared charts, posters, flat pictures, models, etc. Users of the ten media listed brought in or prepared records, slides, tapes, transparencies or other materials.

Q. 39

TABLE A-20

TEACHER OPINION OF BEST ROLE OF AUDIOVISUAL MATERIALS WITHIN ELEMENTARY GRADE AND SECONDARY SUBJECT BY USE OF AUDIOVISUAL MEDIA

Grade or Subject	Teachers Who Stated That AV is an Integral Part of the Course		
	Number	Percent	Difference (Users-Nonusers)
K - 3			
Users	1994	43.7	17.1++
Nonusers	120	26.6	
4 - 6			
Users	1502	52.5	17.1++
Nonusers	65	35.4	
7 - 9			
Users	271	48.7	19.8+
Nonusers	38	28.9	
English			
Users	1033	34.1	15.2++
Nonusers	190	18.9	
Fine Arts			
Users	354	46.3	8.5
Nonusers	37	37.8	
Language			
Users	379	52.0	39.5++
Nonusers	48	12.5	
Mathematics			
Users	344	33.1	12.1++
Nonusers	418	21.0	
Science			
Users	697	51.4	11.9
Nonusers	38	39.5	
Social Studies			
Users	815	43.8	18.5++
Nonusers	79	25.3	

Q. 37

TABLE A-21

COMPARISON OF RELATIVE PREFERENCES FOR VARIOUS FUNCTIONS OF AV MEDIA WITHIN ELEMENTARY GRADE AND SECONDARY SUBJECT BY USE OF AUDIOVISUAL MEDIA

(Data in preference scores, not in percentages)[a]

Grade or Subject	Classroom Function						
	Motivate Students	Enrich Materials	Review	Direct Teaching	Illustrate Principle	Provide Background	Cultural Activity
K - 3							
Users	64	84	36	42	28	60	36
Nonusers	76	78	36	50	30	46	34
4 - 6							
Users	56	88	44	42	30	58	32
Nonusers	54	88	38	32	34	62	42
7 - 9							
Users	56	92	40	46	38	48	30
Nonusers	54	84	32	54	64	42	22
English							
Users	50	90	32	40	36	56	46
Nonusers	46	82	28	44	42	72	36
Fine Arts							
Users	50	74	14	48	50	46	70
Nonusers	58	58	40	48	76	12	58
Language							
Users	52	82	48	38	28	30	70
Nonusers	42	78	28	42	42	42	78
Mathematics							
Users	50	86	38	56	58	44	22
Nonusers	40	68	52	60	72	44	14
Science							
Users	48	88	44	46	56	48	20
Nonusers	42	90	42	52	52	52	24
Social Studies							
Users	54	88	42	40	32	60	34
Nonusers	52	88	32	38	52	58	28

---

[a] Proportions of respondents in a group saying AV media served a given function "very often" were treated like scores; a mean for the group over all functions was computed as well as the standard deviation for the distribution. Standard scores, $z = (X-\bar{X})/s$, were calculated and transformed into a distribution with a mean = 50 and s = 20 by the formula $\left[z = 50+\frac{20(X-\bar{X})}{s} \right]$, to avoid negative numbers and so that the distribution would approximate the more familiar range of 0 to 100. The technique permits direct comparison between user and nonuser groups despite very different absolute levels of "very often" responses. (For description of transformed standard scores, see Edwards A. L. Statistical Methods for the Behavioral Sciences. New York: Holt, Rinehart and Winston, 1962, pp. 106-107).

TABLE B-1

LEVEL OF USE OF FAVORITE MEDIUM AND EDUCATIONAL ATTAINMENT: LOWEST GRADE TEACHERS (K-3)

Highest Degree	Level of Use						Total
	O	L	B	W	H	VH	
M. A.	24	31	18	46	69	64	252
B. A.	229	201	121	286	309	250	1396
T. C.[a]	133	44	31	101	84	65	458
Total	386	276	170	433	462	379	2106

[a] Teaching certificate, no college degree.

TABLE B-2

HOW AV TRAINING AND LEVEL OF USE OF FAVORITE MEDIUM WERE RELATED
(In Per Cent of Those Trained Minus
Per Cent of Those Untrained)[a]

Group	Level of Use				
	None	Low	Biweekly	Weekly	High
K-3	- 9.8	-0.7	-0.9	2.3	9.1
4-6	-11.4	-3.5	0.9	6.4	7.7
7-9	-10.4	1.4		9.0	
Art	- 5.1	-0.6	5.7		
English	2.4	-1.2	-1.2	0.0	
Language	-18.1	-8.2		5.9	20.5
Mathematics	-11.4	6.1	5.3		
Music	-13.3	-9.9		3.9	19.3
Science	2.8	-2.6	-4.4	0.2	4.0
Social Studies	- 7.4	-1.1	0.7	3.6	4.2

[a] The numbers presented in this table and those used for the Kolmogorov-Smirnov test of Trained vs. Untrained within each study group. The number -9.8 in K-3/None cell was obtained as follows: (1) The 2114 teachers in the group were assigned to two classes by training: No training = 726, Any = 1388. (2) The distribution of the 726 and 1388 over the use categories was expressed in percentages; of the 726 teachers without training, 181 or 24.9 per cent, were in the "None" category of Use; of the 1388 trained teachers 210 or 15.1 per cent were in that category. (3) Subtracting 24.9 from 15.1, we get -9.8. (4) For the K-S test the difference shown in the table are cumulated to obtain the maximum D. The signs indicate the direction with respect to training and use.

TABLE B-3

FAMILIARITY WITH OPERATION OF AUDIOVISUAL EQUIPMENT AND LEVEL OF USE OF FAVORITE MEDIUM

Group	Equipment				
	Slide Projector	Film Projector	Tape Recorder	Overhead Projector	Opaque Projector
K-3	+	+	+	+	+
4-6	+	+*	+	+	+
7-9	NA	+*	+		
Art	NA	NA	+		
English			+		
Language	+	+	+*	+	+
Mathematics	+*	+*		+	+
Music	+	+	NA	+	+
Science	NA	NA*			
Social Studies		+*	+		+

Legend: Familiarity defined as in Table A-10, * = Favorite Medium, NA = Insufficient number of those unfamiliar with equipment.

TABLE B-4

PROPORTIONS (%) OF TEACHERS WHO NEEDED NO HELP
(To Use Media Effectively)

Group	Level of Use					
	O	L	B	W	H	VH
K-3	8.7	6.8	5.8	8.2	5.8	9.1
4-6	11.2	8.9	7.0	10.2	1.9	
7-9	15.5	11.9		1.6		
Art	16.0	10.2	8.5			
English	9.2	6.2	8.9	8.9		
Language	14.5	8.9		7.9	9.4	9.7
Mathematics	18.7	7.3	5.4			
Music	16.7	3.8		7.3	10.0	
Science	15.7	6.6	9.7	11.7	7.6	
Social Studies	12.6	6.2	9.8	5.4	17.8	

TABLE B-5

RELATIVE PREFERENCES OF TEN STUDY GROUPS FOR VARIOUS FUNCTIONS OF AV MEDIA

Group	Classroom Function						
	Motivate	Enrich	Review	New Material	Illustrate	Back ground	Cultural
K-3	2	1	5.2	4.5	7	3	5.3
4-6	2.8	1	4.4	4.6	6.6	2.2	6.4
7-9	2.8	1	5.3	3.7	4.7	3.5	7
Art	3.3	1.3	7	3	4.5	5.5	3.3
English	3.5	1	6.9	4.5	5.9	2	4.3
Language	3.2	1.2	4.3	5.5	6.2	5.4	2.2
Mathematics	4.8	1.2	5	3.3	2.3	4.3	7
Music	4.1	1.8	7	5	3.6	5.1	1.4
Science	4.1	1	4.7	4.3	2.5	4.4	7
Social Studies	3.2	1	4.8	4.8	6	2	6.2

A STUDY OF AUDIOVISUAL MEDIA IN THE PUBLIC SCHOOLS

SPONSORED BY:

The Department of Health, Education, and Welfare
Office of Education
Washington 25, D. C.

CONDUCTED BY:

The Bureau of Social Science Research, Inc.
1424 Sixteenth Street, N. W.
Washington 6, D. C.

TEACHER QUESTIONNAIRE

BUREAU OF SOCIAL SCIENCE RESEARCH, INC.
1424 SIXTEENTH STREET, N.W. • WASHINGTON 6, D. C.
TELEPHONE: 234-4000

TRUSTEES
W. PHILLIPS DAVISON
ROBERT T. BOWER
ELLSWORTH BUNKER
GEORGE GALLUP
PAUL F. LAZARSFELD
FRANK LORIMER
PAUL A. SMITH

STUDY OF AUDIOVISUAL MEDIA
ELEANOR P. GODFREY
PROJECT DIRECTOR
SPONSORED BY:
U. S. OFFICE OF EDUCATION

Dear Teacher:

While audiovisual materials have always been used in teaching, there has been considerable interest in the newer educational media in recent years. How effective are these techniques in helping children learn?

As this question can best be answered by those who actually work with children in the schools, we are inviting you to participate in a nationwide survey sponsored by the U. S. Office of Education. Even if some of the questions asked do not apply to your situation, please answer those which do. *Our small sample has been carefully selected to represent all types of schools in the United States. The accuracy of the results depends upon the cooperation of all of the teachers who have been invited to participate.*

You will notice that the questionnaire concentrates on those audiovisual materials which require special equipment to produce, project, or receive. While no actual school or person will be identified, the final report will contain information on how these techniques are used by teachers who teach the same subject and grade as you in schools like yours. We welcome your questions and comments about the study and hope that the report will be as valuable to you as your cooperation is to us.

Thank you for your help.

Sincerely,

Eleanor P. Godfrey

Eleanor P. Godfrey

EPG/as

☐

☐
☐

☐
☐

☐

☐
☐
☐
☐

STUDY OF AUDIOVISUAL MEDIA
Sponsored by U. S. Office of Education
TEACHER QUESTIONNAIRE

1. **Please return this questionnaire at your earliest convenience.** ***It should take about 20 minutes to complete.***
2. **Disregard the small numbers next to the answer boxes. These are simply to help in coding and tabulating.**
3. ***All replies will be held in confidence. No individual or school will be identified in the report of this study.***

BACKGROUND INFORMATION

This first section asks for some background information about your teaching career. If our categories do not quite fit your situation, please add whatever comments are necessary to describe it.

1. Name of school where you teach ______________________________

2. School Street or Post Office Address ______________________________

3. City ____________________ **County** ______________ **State** ____________

4. Please circle the grade level(s) you teach.
11

K 1 2 3 4 5 6 7 8 9 10 11 12 13 14

5. FOR JUNIOR AND SENIOR HIGH SCHOOL TEACHERS What subjects(s) do you teach? If more than one, please give your *major assignment first.*

____

____

6. Including this year, how many years have you been teaching in this school?
24

______**(years)**

7. Including this year, how many years have you been teaching in all?

______**(years)**

8. Please check the highest degree you hold.

1 ☐ **Teaching certificate**
2 ☐ **A. A.**
3 ☐ **B. A., B. S., B. Ed.**
4 ☐ **M. A., M. S., M. Ed.**
5 ☐ **Ph. D., Ed. D.**
9 ☐ **Other** ______________

9. Major field for highest degree? ______________ **10. Year received?** __________

11. Sex: 1 ☐ **Female** 2 ☐ **Male** **12. Year of birth?** __________
34

SOURCES OF INFORMATION AND TRAINING

13. Does you school district prepare information on audiovisual materials available for use with your classes?
36

1 ☐ **Yes** 2 ☐ **No** 3 ☐ **Don't know**

14. IF YES Please indicate how this information is made available to teachers. ***Please check all that apply***

1 ☐ **Each teacher has his own list or catalogue**

2 ☐ **Each department receives this information**

3 ☐ **The school audiovisual coordinator has this information**

4 ☐ **This information is available in the school library**

9 ☐ **Other** ***(specify)*** ________________________________

15. IF YES Is this information sufficient for your needs or not as complete as you would like?

1 ☐ **Sufficient** 2 ☐ **Incomplete**

16. Have you had any special training or course work in the use of audiovisual aids?
39

1 ☐ **Yes** 2 ☐ **No**

17. IF YES What type of audiovisual training have you had? ***Please check all that apply***

1 ☐ **College or university course** 3 ☐ **Inservice training during school year**

2 ☐ **Summer workshop** 9 ☐ **Other** ________________________________

18. Do you have an opportunity to suggest purchase or rental of audiovisual equipment and/or materials used in your school?

1 ☐ **Yes** 2 ☐ **Yes, but haven't suggested any** 3 ☐ **No**

19. IF YES How often are the items you suggest purchased or rented?
42

1 ☐ **Almost always** 4 ☐ **Rarely**

2 ☐ **Frequently** 5 ☐ **Never**

3 ☐ **Occasionally** 9 ☐ **Other** ________________________________

20. **Which one of the following sources has given you the most valuable information about audiovisual materials and equipment suitable for your classes?** ***PLEASE CHECK ONLY ONE ANSWER***

43

1 ☐ **Catalogue or bulletin issued by my school or school district**

2 ☐ **Information supplied by distributors or manufacturers of audiovisual aids**

3 ☐ **Training sessions or workshops given by my school or school district**

4 ☐ **An audiovisual course or summer workshop at a university or college**

5 ☐ **Fellow teachers**

6 ☐ **Professional journals**

9 ☐ **Other *(specify)*** ____________________

0 ☐ **None**

21. **Which one of the following types of assistance do you need *most* to use audiovisual aids effectively?** ***PLEASE CHECK ONLY ONE ANSWER***

1 ☐ **Suggestions of appropriate audiovisual materials for my classes**

2 ☐ **Instruction or help in operating the equipment**

3 ☐ **Suggestions on the best use of available materials**

4 ☐ **Help in keeping up-to-date on new audiovisual materials**

5 ☐ **Help in ordering materials and procuring equipment**

6 ☐ **Repair and maintenance of equipment**

7 ☐ **Classifying and storing materials**

8 ☐ **Preparation of specialized audiovisual materials**

9 ☐ **Other *(specify)*** ____________________

____

0 ☐ **None**

22. **What person in your school usually gives you the type of assistance that you checked in Question 21?**

Name ____________________

Major job title ____________________

☐ **No one**

23. **Is the person you named in Question 22 assigned to coordinating audiovisual activities in your school?**

47

1 ☐ **Yes** 2 ☐ **No** 3 ☐ **Don't know**

USE OF AUDIOVISUAL AIDS

24. **During the fall semester (1961), about how many times did you use any of the following with your classes during regular school hours?** ***PLEASE GIVE APPROXIMATE NUMBER FOR FOR EACH AID, IF NONE, USE 0***
11

NUMBER OF TIMES USED	AUDIOVISUAL AID	NUMBER OF TIMES USED	AUDIOVISUAL AID
________	**Filmstrips (strip films)**	________	**2 x 2 slides**
________	**Sound films**	________	**Radio programs**
________	**Records**	________	**Television programs**
________	**Tape recordings (language arts, foreign language)**	________	**Overhead projector**
________	**Tape recordings (other than language)**	________	**Opaque projector**

☐ **Did not use any of these audiovisual aids**
31

25. **Do you bring into class any of *your own* slides, records, home movies or other audiovisual aids?**
32

1 ☐ **Yes** 2 ☐ **No**

26. IF YES **Which ones have you brought into class?**

1 ☐ **Slides**
2 ☐ **Records**
3 ☐ **Home movies**
9 ☐ **Other** ____________________

27. **Do you *prepare* any slides, transparencies, tapes or other audiovisual materials for use in your classes?**

1 ☐ **Yes** 2 ☐ **No**

28. IF YES **Which materials have you made?**

1 ☐ **Slides**
2 ☐ **Transparencies**
3 ☐ **Tapes**
9 ☐ **Other** ____________________

29. **How familiar are you with the operation of each of the following pieces of equipment?** ***PLEASE CHECK ONE ANSWER FOR EACH PIECE OF EQUIPMENT LISTED***

EQUIPMENT	HAVE NEVER OPERATED	FIND HARD TO OPERATE	FIND EASY TO OPERATE	CAN TEACH SOMEONE ELSE TO OPERATE
Slide filmstrip projector				
Film projector				
Tape recorder				
Overhead projector				
Opaque projector				

In the next six questions, please imagine yourself in *EACH* of the teaching situations given, even if you have never taught that particular unit. Assume that each of the auxiliary teaching resources listed is equally available to you and rank them from 1-6 in order of your preference. *PLEASE RANK EVERY RESOURCE FOR EVERY QUESTION USING 1 FOR YOUR MOST PREFERRED CHOICE*

30. For a *unit on rockets,* you could use any of the resources or teaching techniques listed below. How would you rank these with respect to their value for the rocket unit? *PLEASE GIVE EACH RESOURCE A NUMERICAL RANK FROM 1-6*
11

______ **Displays, posters**

______ **Demonstrations**

______ **Field trips**

______ **Bring in individuals to speak**

______ **Reference works (books, magazines, periodicals)**

______ **Audiovisual aids (films, records, television, etc.)**

31. For a *unit on local trees,* you could use any of the resources or teaching techniques listed below. How would you rank these with respect to their value for the local tree unit? *PLEASE GIVE EACH RESOURCE A NUMERICAL RANK FROM 1-6*
17

______ **Displays, posters**

______ **Demonstrations**

______ **Field trips**

______ **Bring in individuals to speak**

______ **Reference works (books, magazines, periodicals)**

______ **Audiovicual aids (films, records, television, etc.)**

32. For a *unit on local government,* you could use any of the resources or teaching techniques listed below. How would you rank these with respect to their value for the local government unit? *PLEASE GIVE EACH RESOURCE A NUMERIAL RANK FROM 1-6*
23

______ **Displays, posters**

______ **Demonstrations**

______ **Field trips**

______ **Bring in individuals to speak**

______ **Reference works (books, magazines, periodicals)**

______ **Audiovisual aids (films, records, television, etc.)**

33. You want to give your class *an understanding of American holidays.* You could use any of the resources or teaching techniques listed below. How would you rank these with respect to their value for teaching students about holidays? *PLEASE GIVE EACH RESOURCE A NUMERICAL RANK FROM 1-6*
29

______ Displays, posters

______ Demonstrations

______ Field trips

______ Bring in individuals to speak

______ Reference works (books, magazines, periodicals)

______ Audiovisual aids (films, records, television, etc.)

34. For a *unit on the people and animals of Africa,* you could use any of the resources or teaching techniques listed below. How would you rank these with respect to their value for a unit on African people and animals? *PLEASE GIVE EACH RESOURCE A NUMERICAL RANK FROM 1-6*
36

______ Displays, posters

______ Demonstrations

______ Field trips

______ Bring in individuals to speak

______ Reference works (books, magazines, periodicals)

______ Audiovisual aids (films, records, television, etc.)

35. For a *unit on Colonial American literature,* you could use any of the resources or teaching techniques listed below. How would you rank these with respect to their value for a unit on Colonial American literature? *PLEASE GIVE EACH RESOURCE A NUMERICAL RANK FROM 1-6*
42

______ Displays, posters

______ Demonstrations

______ Field trips

______ Bring in individuals to speak

______ Reference works (books, magazines, periodicals)

______ Audiovisual aids (films, records, television, etc.)

OVERVIEW OF AUDIOVISUAL MEDIA

36. Below is a list of difficulties teachers have experienced in using audiovisual aids. Please indicate which are important problems for you.
PLEASE CHECK EITHER THE YES ☐ *OR NO* ☐ *FOR EACH STATEMENT*
11

YES NO

1 ☐ ☐ I do not have enough time to preview or prepare materials adequately.

2 ☐ ☐ It is difficult to integrate audiovisual materials into my lesson plans.

3 ☐ ☐ I do not have enough information to know what materials are most appropriate for my grade level.

4 ☐ ☐ My classroom is not properly set up to use audiovisual aids.

5 ☐ ☐ I do not have anough time to do all the basic teaching I should, let alone use audiovisual aids.

6 ☐ ☐ Much of the equipment is too difficult to operate.

7 ☐ ☐ Much of the equipment is in poor repair or obsolete.

8 ☐ ☐ There are few good audiovisual materials in my subject area.

9 ☐ ☐ There is too much "red tape" involved in ordering materials and scheduling equipment.

10 ☐ ☐ Students look on audiovisual lessons as "entertainment" and do not "study" material presented.

11 ☐ ☐ Audiovisual aids are too expensive for the results achieved.

12 ☐ ☐ Materials or equipment frequently are not available when I need them.

13 ☐ Other *(specify)* ____________________

____

14 ☐ I have no difficulties in using audiovisual aids.

37. Audiovisual media may serve a number of purposes. How often do you put them to the following uses? *PLEASE CHECK ONE ANSWER FOR EACH USE*
25

USE	RELATIVE FREQUENCY			
	VERY OFTEN	SOMETIMES	SELDOM	NEVER
To motivate students to learn				
To enrich material given in text or class discussion				
To review material given in text or class discussion				
To present new material (for direct teaching)				
To illustrate a principle				
To provide general background for a unit				
For cultural activity				

38. **What plans do you have for using each of the following audiovisual aids *in your classes* this semester (spring term 1962)?** ***PLEASE CHECK ONE ANSWER FOR EACH AID LISTED***
32

MEDIA	PLAN TO TRY	CONTINUE PRESENT USE	EMPHASIZE USE	DE-EMPHASIZE USE	NO PLAN TO TRY
Filmstrips (strip films)					
Sound films					
Records					
Tape recordings (language arts, foreign language)					
Tape recordings (other than language)					
2 x 2 slides					
Radio programs					
Television programs					
Overhead projector					
Opaque projector					
Teaching machines					

39. **In general, do you think audiovisual materials are best used as an integral part of a course? For supplementary information? Or to highlight a special unit?**
44

1 ☐ **Integral part of course**
2 ☐ **For supplementary information**
3 ☐ **To highlight a special unit**

Thank you for completing the questionnaire. We would be glad to have any additional comments you wish to make about the use of audiovisual aids in teaching.

Name (please print) ______________________________

We are asking for your name so that we can record the fact that you have returned the questionnaire and can exclude you from follow-up mailings. The survey is completely confidential. Your name will not be associated with the findings in any way.

FIRST CLASS
PERMIT NO. 33451
WASHINGTON, D. C.

BUSINESS REPLY MAIL
NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

POSTAGE WILL BE PAID BY

DR. ELEANOR P. GODFREY

BUREAU OF SOCIAL SCIENCE RESEARCH, INC.

1424 16TH STREET, N.W.

WASHINGTON 6, D.C.

THE BUREAU OF SOCIAL SCIENCE RESEARCH, INC., is a non-profit institution devoted to research and training in the social sciences.

Primary areas of concentration have been:

- education research,
- professional careers,
- human behavior under stress,
- intergroup relations,
- communication processes and opinions in this country and abroad.

Previous studies in the educational field include:

- an analysis of employment opportunities for high school drop outs,
- a series of evaluation studies of the Summer Institute Program of the National Science Foundation,
- a nation-wide survey of early career patterns of 1958 college graduates two years after graduation.

NO ENVELOPE OR POSTAGE NECESSARY FOR RETURNING THIS QUESTIONNAIRE

1. Close booklet so that the cover page and gummed edge of back flap are visible.
2. Moisten gummed edge of flap, and fold, sealing edge to cover.
3. Business reply panel will now be visible, and questionnaire may be mailed flat.